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# VALUE OF A SPECIFIC SERUM IN THE TREATMENT OF TYPHOID FEVER

## A REPORT ON SEVENTY-THREE CASES

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In the past typhoid fever therapy has been largely confined to diet, hydrotherapy, and the treatment of symptoms; and few, if any, of the infectious fevers due to a known organism occurring in this country have been less amenable to specific measures. Anti-typhoid sera have been available for a considerable time, but these have not been subjected to potency tests by animal experiment, nor have they been standardized by titration, except for the H-antibody, which is of no value since it has neither anti-bacterial nor antitoxic effect. It is therefore not surprising that the clinical results following the use of such sera have been disappointing. Attempts at specific therapy with typhoid vaccine have also not given satisfaction, and it is doubtful if good results, if they really do occur with this method, are actually due to a specific action. In any case treatment with vaccines has a limited application, and in a severe attack of the disease, where the need is most urgent, their use is dangerous.

Within the last year or two, however, following upon the work of Felix, a serum prepared at the Lister Institute has been available the potency of which has been demonstrated in animal experiment, in which it has been shown capable of protecting against the effects of injections of live *B. typhosus* and also against the toxic action of massive doses of dead organisms (Felix and Pitt, 1934). Felix believes that virulent (Vi) strains of the organism are characterized by a special Vi antigen which renders the O antigen resistant to the O antibody; to be effective against a virulent strain the immune serum must therefore contain Vi antibody. On the other hand, as Felix and Pitt (1934) have shown in animal experiments, the Vi antibody is mainly bactericidal and has no appreciable antitoxic action. From this it is clear that therapeutic anti-typhoid serum should contain an adequate amount of O or antitoxic immune bodies in order to avoid an adverse effect produced by toxins liberated as a result of the bactericidal action of the Vi antibody. In addition to Vi antibody the Lister Institute serum contains O antibody, which is an indicator of the potency of the serum in antitoxic activity. Estimations of the Vi titre in the sera of untreated patients show this to be low until convalescence (Felix, Krikorian, and Reitler, 1935). The necessity for a balance between bactericidal and antitoxic activities will be referred to again in discussing some favourable serum effects which appeared to be delayed. It is possible that further experience will show the desirability of using the Vi and O antibodies separately, the dosage of each being controlled by serial agglutination tests.

At the present time the results in three series of cases of typhoid fever treated with Lister Institute serum have been published. Felix (1935) reported forty-three cases together with seventeen controls who received injections of normal horse serum. At first the immune and the normal serum were given to alternate patients, the medical attendants being unaware as to which was the specific preparation. Before long, however, they became so convinced that a beneficial action followed the use of one of the sera (which was in fact the specific) that they refused to continue with the other, and no further controls were therefore obtained. The anti-typhoid serum used was unconcentrated and had maximum agglutination titres for Vi and O antibodies of 400 and 40,000 respectively; it was given chiefly by the intramuscular route, the usual dose being 50 c.cm., but this was repeated daily in severe cases to a total of three doses. Of the forty-three cases favourable effects were noted on the toxaemia in twenty-four, and on the temperature in twenty-three. Twelve patients were classed as extremely severe cases, and of these five died. C. J. McSweeney (1935) recorded the results in eight patients treated at Dublin, and Robertson and Yu (1936) in fifty-six patients treated in China; the serum used was either that obtained from the Lister Institute or, in the Chinese cases, was locally prepared by a similar method.

All these observers agreed in concluding that the serum was held to have a favourable effect on both the toxaemia and the temperature, but assessment of its value on the basis of mortality rate was impossible, since there were no controls or these were inadequate. Similarly the mortality in treated series as compared with that in other outbreaks where no serum has been used is of no value as a criterion of its efficiency because of the well-known variation in the severity of the disease from one outbreak to another. To control the results adequately it would be necessary to observe the effects in a large series of cases when serum was strictly reserved for alternate patients, all of whom should preferably be at about the

TABLE I

(IM = Intramuscularly. IV = Intravenously. (*d*) = Delayed.)

| Case No. | Age & Sex | Serum: Day given | Serum: Dose (c.cm.) | Serum: Route | Effect on toxaemia | Effect on temperature | Severity | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 | 2½ M | 16th | 7 | IM | – | – | Severe | |
| | | 17th | 7 | IM | + | +(*d*) | | |
| 2 | 4 F | 13th | 13 | IM | + | – | Severe | |
| 3 | 5 M | 23rd | 11 | IM | + | – | Moderate | |
| 4 | 5 M | 13th | 10 | IM | + | + | Severe | |
| 5 | 5 M | 34th | 13 | IM | – | – | Very | |
| | | 40th | 11 | IM | + | + | severe | |
| 6 | 6 M | 12th | 10 | IM | + | – | Very severe | |
| 7 | 7 F | 35th | 13 | IM | + | + | Very | Femoral thrombosis and pulmonary embolus occurred during convalescence; died |
| | | 37th | 17 | IM | + | + | severe | |
| | | 40th | 20 | IM | + | + | | |
| 8 | 7 M | 9th | 10 | IM | – | – | Very | |
| | | 17th | 20 | IV | – | – | severe | |
| | | 18th | 20 | IV | + | + | | |
| 9 | 7 F | 23rd | 10 | IV | + | + | Severe | |
| | | 24th | 10 | IV | + | + | | |
| | | 26th | 10 | IV | + | + | | |
| 10 | 7 F | 29th | 15 | IM | – | – | Mild | Serum given during relapse |
| | | 30th | 20 | IM | + | +(*d*) | | |
| 11 | 8 F | 17th | 10 | IM | – | – | Mild | |
| 12 | 9 F | 41st | 12 | IM | – | – | Moderate | Serum given in relapse |
| 13 | 9 M | 22nd | 11 | IM | + | + | Moderate | |
| 14 | 9 M | 11th | 11 | IM | – | – | Severe | |
| | | 13th | 13 | IM | – | – | | |
| | | 14th | 13 | IM | + | + | | |
| 15 | 9 M | 19th | 13 | IM | – | – | Severe | |
| | | 20th | 7 | IM | – | – | | |
| | | 27th | 7 | IM | – | – | | |
| 16 | 9 M | 13th | 13 | IM | + | + | Severe | |
| 17 | 10 F | 31st | 13 | IM | + | + | Moderate | |
| | | 32nd | 10 | IM | + | + | | |
| 18 | 10 F | 28th | 20 | IM | – | – | Severe | |
| | | 34th | 33 | IM | + | + | | |
| 19 | 10 M | 24th | 11 | IM | + | + | Very severe | |
| 20 | 10 F | 35th | 13 | IM | + | + | Very | |
| | | 36th | 13 | IM | + | + | severe | |
| | | 38th | 13 | IM | + | + | | |
| 21 | 11 M | 20th | 11 | IM | – | – | Very severe | |
| 22 | 11 F | 26th | 30 | IM | + | – | Very | Brachial neuritis in convalescence—? serum effect |
| | | 27th | 33 | IM | + | + | severe | |
| | | 28th | 13 | IM | + | + | | |
| 23 | 12 M | 31st | 15 | IM | + | + | Very severe | Serum given during recrudescence |
| 24 | 12 M | 55th | 13 | IM | + | + | Very severe | Perforation on 31st day; serum given during relapse |
| 25 | 12 M | 20th | 16 | IM | – | – | Very | |
| | | 38th | 13 | IM | + | + | severe | |
| | | 40th | 13 | IM | + | + | | |
| | | 42nd | 13 | IM | + | + | | |
| 26 | 13 F | 7th | 20 | IM | + | + | Mild | |
| 27 | 14 F | 11th | 13 | IM | + | + | Very | |
| | | 13th | 7 | IM | + | + | severe | |
| | | 14th | 15 | IM | + | + | | |
| 28 | 14 M | 11th | 13 | IM | – | – | Severe | |
| 29 | 14 M | 30th | 13 | IM | – | – | Severe | |
| | | 35th | 15 | IM | + | + | | |
| 30 | 14 F | 39th | 20 | IM | + | + | Severe | |
| 31 | 14 F | 25th | 20 | IM | – | – | Very severe | Blood transfusion |
| 32 | 15 M | 10th | 13 | IM | – | – | Very severe | Died |
| 33 | 15 F | 29th | 13 | IM | + | + | Severe | |
| 34 | 15 M | 22nd | 20 | IM | – | – | Severe | |
| | | 24th | 20 | IM | + | +(*d*) | | |
| 35 | 16 F | 12th | 13 | IM | – | – | Very | Multiple abscesses. Severe respiratory symptoms |
| | | 18th | 10 | IM | – | – | severe | |
| 36 | 16 M | 16th | 22 | IM | + | – | Moderate | |
| 37 | 16 F | 14th | 13 | IM | + | + | Severe | |
| | | 15th | 7 | IM | + | + | | |
| | | 21st | 7 | IM | + | + | | |
| 38 | 16 F | 33rd | 33 | IV | + | – | Very | Multiple abscesses; severe haemorrhages; two blood transfusions. Died |
| | | 35th | 20 | IM | + | – | severe | |
| 39 | 17 F | 22nd | 33 | IM | + | – | Mild | |
| | | 25th | 33 | IM | + | + | | |
| 40 | 18 M | 21st | 13 | IM | + | – | Severe | |
| | | 22nd | 7 | IM | + | – | | |
| | | 28th | 7 | IM | + | + | | |
| 41 | 18 F | 34th | 13 | IM | – | – | Very | Septic complications; anaemia; blood transfusion. Died |
| | | 35th | 33 | IM | – | – | severe | |
| | | 36th | 13 | IM | – | – | | |
| | | 41st | 33 | IM | – | – | | |
| 42 | 18 F | 11th | 13 | IM | + | + | Very severe | |
| 43 | 19 F | 26th | 33 | IV | + | + | Very | Died |
| | | 31st | 33 | IM | + | + | severe | |
| | | 32nd | 33 | IV | + | + | | |
| | | 33rd | 33 | IV | + | + | | |
| 44 | 19 M | 18th | 17 | IM | + | – | Moderate | |
| 45 | 21 M | 11th | 13 | IM | no toxaemia | +(*d*) | Mild | |
| | | 13th | 17 | IM | | | | |
| 46 | 23 F | 37th | 33 | IM | + | + | Severe | Serum given during relapse |
| | | 38th | 33 | IM | + | + | | |
| 47 | 24 F | 7th | 33 | IM | – | – | Moderate | |
| | | 10th | 33 | IM | – | – | | |
| | | 11th | 33 | IM | – | – | | |
| 48 | 25 F | 18th | 33 | IM | + | +(*d*) | Severe | |
| | | 22nd | 33 | IM | + | + | | |
| 49 | 26 F | 16th | 15 | IM | + | + | Moderate | |
| | | 17th | 25 | IV | + | + | | |
| | | 18th | 20 | IV | + | + | | |
| 50 | 26 F | 33rd | 16 | IM | + | + | Moderate | |
| 51 | 27 F | 20th | 20 | IV | + | + | Very | |
| | | 21st | 20 | IV | + | + | severe | |
| | | 22nd | 17 | IV | + | + | | |
| 52 | 27 F | 39th | 33 | IM | – | – | Severe | |
| | | 42nd | 33 | IM | + | + | | |
| 53 | 29 F | 27th | 33 | IM | – | – | Severe | Intestinal haemorrhage; blood transfusion |
| | | 28th | 13 | IM | – | – | | |
| | | 33rd | 33 | IM | + | +(*d*) | | |
| 54 | 31 F | 18th | 20 | IV | + | – | Very | |
| | | 19th | 20 | IV | + | – | severe | |
| 55 | 31 F | 35th | 20 | IV | + | – | Severe | |
| 56 | 32 F | 10th | 16 | IM | + | + | Mild | |
| 57 | 32 F | 39th | 20 | IM | + | + | Severe | Third dose of serum given during relapse |
| | | 40th | 33 | IM | + | + | | |
| | | 73rd | 33 | IM | + | + | | |
| 58 | 33 F | ? 4th | 26 | IM | – | – | Very | Ill three weeks before taking to bed |
| | | ? 5th | 33 | IM | – | – | severe | |
| | | ? 6th | 33 | IM | – | – | | |
| 59 | 33 F | 21st | 13 | IM | + | + | Very severe | |
| 60 | 34 F | 39th | 13 | IM | + | – | Severe | Intestinal haemorrhage: three blood transfusions given |
| | | 40th | 33 | IM | + | – | | |
| | | 41st | 10 | IM | + | + | | |
| | | 59th | 10 | IM | + | + | | |
| 61 | 36 F | 9th | 13 | IM | + | + | Severe | |
| 62 | 37 F | 2nd | 33 | IM | – | – | Severe | |
| | | 3rd | 33 | IV | – | – | | |
| 63 | 37 F | 32nd | 22 | IM | + | – | Very | Anaphylactic shock after second injection |
| | | 42nd | 20 | IV | + | + | severe | |
| 64 | 37 F | 37th | 33 | IM | – | – | Severe | |
| | | 45th | 33 | IM | + | – | | |

TABLE I—*continued*

| Case No. | Age & Sex | Serum | | | Effect on toxaemia | Effect on temperature | Severity | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Day given | Dose (c.cm.) | Route | | | | |
| 65 | 38 F | 29th<br>30th | 20<br>23 | IM<br>IV | +<br>+ | +<br>+ | Very severe | |
| 66 | 44 F | 45th<br>47th | 33<br>33 | IM<br>IM | –<br>+ | –<br>+(*d*) | Very severe | |
| 67 | 46 F | 6th<br>7th<br>12th | 15<br>20<br>26 | IM<br>IM<br>IM | +<br>+<br>+ | –<br>–<br>– | Moderate | |
| 68 | 49 F | 29th | 33 | IM | no toxaemia | – | Moderate | Intestinal haemorrhage; blood transfusion |
| 69 | 59 F | 39th<br>40th | 33<br>13 | IM<br>IM | –<br>+ | –<br>+ | Severe | |
| 70 | 67 F | 47th | 15 | IM | no toxaemia | +(*d*) | Mild | Complicated by subacute cholecystitis |
| 71 | 67 M | 12th<br>15th | 13<br>17 | IM<br>IM | –<br>– | –<br>– | Moderate | History of coronary occlusion one year previously |
| 72 | 70 F | 25th<br>26th | 33<br>20 | IM<br>IM | –<br>– | –<br>– | Very severe | Complicated by uraemia and thrombophlebitis. Died |
| 73 | 74 M | 34th<br>35th | 33<br>33 | IM<br>IM | –<br>– | –<br>– | Very severe | Thrombophlebitis; convulsion; died |

same stage of the disease. This ideal has been closely approached in investigations on anti-pneumococcal serum, but up to the present it is far from being realized in clinical experiments with anti-typhoid serum, and because of the insidious onset of the fever it is hardly likely to be attained.

### Results in the Present Investigation

A local outbreak in 1936, the result of a milk-borne infection which involved some 500 persons, provided an opportunity for the use of the new anti-typhoid serum. Of approximately 500 patients admitted to the local borough isolation hospitals seventy-three received serum, and with a few exceptions these were the more severe cases. Unfortunately the circumstances were not such as were likely to secure the optimum results: the majority received serum late in the course of the disease; in a considerable proportion of the cases the dosage was too low (partly because of difficulty in obtaining adequate supplies); and in a few simultaneous blood transfusion or intravenous saline infusion made it difficult to assess the results. There were no controls, the treatment being reserved largely for the more severe cases. The details are given in Table I. In all there were fifty-five classified as severe or very severe, of which twenty-seven were children aged 15 or under; the total number of children was thirty-four.

In assessing the results the stage at which treatment was started is important, since in the later stages natural improvement is more likely and might be wrongly attributed to the remedy, though this source of error will diminish in proportion to the severity of the case. During the first fourteen days of the illness twenty patients were treated (reckoning the onset from the day of taking to bed), thirteen during the third week, and forty later than this. The dosage is given in Table I; it averaged 24 c.cm. in children and 47 c.cm. in adults; in many instances it was probably too low, as the amount for adult patients recommended by the Lister Institute is three doses of 33 c.cm. of the concentrated serum. A preliminary desensitizing dose of 0.5 c.cm. was given intramuscularly. The titres of the batches of serum used, estimated by agglutination, were stated to be 1 in 600–700 against strain Watson, and 1 in 60,000 against strain 0901, for Vi and O antibodies respectively.*

The results were considered in relation to effects on temperature and toxaemia separately; the latter was occasionally benefited apart from the temperature, though the reverse never occurred. Temperature, being an entirely objective observation, may be regarded as the more reliable criterion of effect, yet it is not in fact a simple matter to define exactly what is meant by a favourable effect. We have taken as an arbitrary standard the lowering of a previously high constant temperature within forty-eight hours of the injection of serum, the fall continuing for at least seven days; in many cases it reached normal and remained down permanently. Doubtful effects were classified as negative—for example, in the cases in which the temperature was falling just before the serum was given. When the result was favourable the fall in temperature was combined as a rule with an increase in the daily remission—that is, the chart showed a curve similar to that observed during the phase of spontaneous defervescence in typhoid. Effects on toxaemia, the signs of which do not require definition, were accepted only when well marked, and if evident within forty-eight hours.

Of the seventy-three cases there was a favourable action, as defined above, on toxaemia in fifty-four patients (in thirty-eight of these the effect being noted after the initial dose of serum), and on temperature in forty (in twenty-eight after the first dose). When the cases are classified according to the period of the disease at which treatment was started the results were as follows: first fourteen days, favourable effects on toxaemia in eleven and on temperature in eight of twenty treated; third week, eleven and five respectively out of thirteen; later than the third week, thirty-two and twenty-seven respectively out of forty. Three patients showed no symptoms of toxaemia (Table II).

TABLE II.—*Serum Effects Classified According to the Period of Disease Treated*

| Period of disease treated | Number treated | Favourable effect on toxaemia | Favourable effect on temperature |
|---|---|---|---|
| First 14 days .. .. | 20 | 11 | 8 |
| Third week .. .. | 13 | 11 | 5 |
| Later than third week | 40 | 32 | 27 |
| Totals .. .. | 73 | 54 | 40 |

In a further eight patients improvement was noted within two to seven days after treatment, and we have reason to think that the beneficial effects of serum may sometimes be delayed for this period. Seven of the serum-treated patients died; in two of these (Nos. 38 and 41) there was sepsis; three (Nos. 7, 72, and 73) had thrombophlebitis; two were over 70 (Nos. 72 and 73); and three were moribund when treatment was started (Nos. 38, 43, and 73). In No. 32 the dosage was wholly inadequate. Case No. 73, a man aged 74, was admitted to hospital on the thirty-fourth day of the disease, and had been about until that time.

A few cases may be mentioned individually as being of special interest.

No. 63 had a prolonged and severe illness with high temperature, delusions, and retention of urine with cystitis. On

* The serum, we understand, now supplied by the Lister Institute is of about double this strength.

the thirty-second day 22 c.cm. of serum were given intramuscularly, but this was not followed by any definite effect. Ten days later, after desensitization, 20 c.cm. of serum were given intravenously: a severe anaphylactic reaction followed, but immediately after this general improvement set in. It is possible that this favourable effect was non-specific, a result of anaphylactic shock.

Case No. 43, a girl of 19, when moribund, was given gum-saline and serum intravenously and intramuscularly to a total dosage of 132 c.cm. in a week; delirium disappeared, the patient became quiet and mentally clear, and the temperature fell; she was in an exhausted condition, however, and died six days later. Case No. 62, in which serum was given very early and in adequate doses, was fairly severe; there was no immediate effect on temperature or toxaemia, but seven days after the initial injection it began to fall and became more remittent, finally reaching normal on the nineteenth day of her illness.

Case No. 22, a girl aged 11, was severely toxic, with abdominal distension, vomiting, delirium, and lethargy, showing all the features of the typical "typhoid state," and later there was coma with incontinence of urine; the pulse was 140, being irregular and "thready." On the twenty-sixth day, when her condition appeared desperate, 30 c.cm. of serum were given intramuscularly and further doses of 33 and 13 c.cm. respectively on the following two days. Within twenty-four hours there was a marked general improvement; the patient was no longer comatose, the delirium ceased, and the temperature fell by lysis, reaching normal on the thirty-third day. Convalescence was uneventful with the exception of a brachial neuritis, which is to be mentioned later. Case No. 38, a girl, aged 16, was given 33 c.cm. of serum intravenously on the thirty-third day and 20 c.cm. intramuscularly on the thirty-fifth day; at this time toxaemia was severe and she was in a semi-conscious, delirious condition. After the injections the temperature remained high, but the restlessness and delirium cleared for forty-eight hours; a blood transfusion the day before the first dose of serum was given had had no effect on these symptoms. Unfortunately, soon after the beneficial effects were noted subcutaneous abscesses appeared and the patient died.

### Serum Complications

A serum rash was observed in twenty-two of the seventy-three cases. Case No. 64, a female aged 37, who had toxic goitre, had an attack of tachycardia—pulse 160—on the day following the first injection of 33 c.cm. intramuscularly, but this soon subsided; the second injection of 33 c.cm. eight days later caused no by-effects, and the patient's general condition took a turn for the better. The observation illustrates how, in the presence of toxic goitre, a reaction to serum may be excessive, just as it is to infection or trauma. Case No. 22, a girl of 11, who had received a total of 76 c.cm. serum in three days, which is a large dose for a child, developed a brachial neuritis affecting the fifth and sixth cervical roots. Owing to the patient's exhausted condition and the absence of all subjective symptoms, the exact time of onset is uncertain, but it was first noticed about a fortnight after the serum was given. On stimulation electrically the reactions of degeneration were observed in the deltoid and inner head of the biceps. The condition is slowly improving, but after four months there is still some weakness in the affected arm. Neurological complications of serum treatment are rare; they have been reviewed by I. M. Allen (1931), who described four types: neuritic, radicular, polyneuritic, and cerebral. The radicular type, which is most common and usually affects the brachial plexus, is almost indistinguishable from the toxic brachial neuritis which occasionally follows typhoid fever. There were no other signs of serum sickness, but these are not always observed in neurological serum complications. It is, however, impossible to decide whether the paralysis should be regarded as a serum reaction or as a toxic effect of the disease.

A severe anaphylactic reaction was seen once only (Case No. 63). As already noted, after the reaction an improvement in this patient's condition occurred. In two children (Cases Nos. 6 and 14) a desensitizing dose of 0.5 c.cm. serum produced severe local and general reactions and further doses were withheld. Both of these children had been given serum a few days previously without reaction.

### Conclusion and Summary

Previous reports on the therapeutic effect of Felix anti-typhoid serum have all been favourable, and similarly the results of the present investigation on seventy-three patients are thought to be encouraging. The serum is known to be potent in animals, and while the result of the injection of *B. typhosus* into a laboratory animal is a very different matter from the naturally occurring disease in man, the demonstration of such potency in a serum would appear desirable prior to its clinical use. Some of the difficulties in assessing the value of serum in typhoid have been mentioned, and although the present and previous reports suggest that it is a remedy of definite promise, its exact worth is to be proved only by more extended use, and, where circumstances permit, with adequate controls. An adequate control could be provided by withholding all serum from alternate patients. There appears to be no need to give the controls normal horse serum, as there is already sufficient evidence that horse serum *per se* has no beneficial effect.

In a considerable proportion (73 per cent.) of cases we noted improvement within forty-eight hours of injection of the serum. In a further 10 per cent. some benefit occurred after a few days' interval, and in these it is possible that the action of the serum was delayed. Theoretically this might occur when the antitoxic lagged behind the bactericidal action, the first effect being predominantly a destruction of organisms with liberation of toxin in amounts too great to be dealt with immediately by the available antitoxin.

The mortality in the treated patients was 9.5 per cent., which may prove to be somewhat higher than in the others (the rate for the whole epidemic is not yet available), but as the former group was selected on the basis of greater severity no comparison is possible. Of thirty-three patients treated during the first three weeks only one died; the dose of serum in this case (13 c.cm.) was inadequate.

For sporadic cases or small outbreaks, where the numbers do not admit of proper controls, we believe the evidence so far available warrants the administration of serum at the earliest possible moment, and in full doses, irrespective of the severity of the disease.

We have to acknowledge our thanks to the medical officers of health for Poole and Bournemouth, and to the honorary physicians of the Royal Victoria and West Hants Hospital, who kindly allowed us to see patients under their direct care and to make use of their case notes.

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# OBSERVATIONS ON BENZEDRINE

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Benzedrine was first introduced into therapeutics by Prinzmetal and Bloomberg (1935) for the treatment of narcolepsy. They found it more efficacious than ephedrine in bringing about symptomatic relief in this condition, and their claim has subsequently been confirmed. When they began their work little was known of the effects of the drug on man, though some physiological investigations had already been made on animals (Alles, 1933; Prinzmetal, 1933). In the same year Peoples and Guttmann made an independent study of its pharmacological actions at the Maudsley Hospital. Certain hitherto unrecorded psychological effects resulting from the administration of the drug to man were observed. In a preliminary report (Peoples and Guttmann, 1936) on these findings it was suggested that benzedrine might have therapeutic applications other than the treatment of narcolepsy. Numerous people have since experimented with the drug and a few have already indicated their findings, some workers confining their investigations to its use in depression, and others dealing with its wider psychophysiological actions (Guttmann, 1936; Myerson, 1936, 1937; Myerson and Ritvo, 1936; Nathanson, 1937; Solomon and Prinzmetal, 1937); one paper has specially stressed possible dangers and contraindications (Anderson and Scott, 1936).

It is the purpose of this paper to report further personal observations of an experimental and therapeutic nature which have been collected since the preliminary communication on this subject (Peoples and Guttmann, 1936). Benzedrine has now been given to over 250 in-patients, out-patients, and normal subjects at this hospital; in a proportion of these only the subjective and objective results of administration have been noted, but in more than a hundred cases systematic experiments were carried out.

Benzedrine (β-phenylisopropylamine) is an adrenaline-like drug with an action on the vegetative nervous system. It paralyses intestinal activity, raises the blood pressure, and produces other vasomotor effects to be described in detail later. It is also used in the form of an inhalant to bring about constriction of the nasal mucous membrane. It interferes with sleep and may cause pronounced psychological changes. Blood-sugar levels are not affected (Peoples and Guttmann, 1936), and work done at the Central Pathological Laboratory of the L.C.C. Mental Service under Dr. Golla indicates that it does not produce any significant alteration in the basal metabolic rate or impedance angle. An inhibiting action on the sphincters of the bladder and rectum and an increase in the number of circulating red cells have also been recorded after its administration (Myerson, 1937; Myerson and Ritvo, 1936; Nathanson, 1937).

Our own investigations have been mostly confined to the action of benzedrine on the cardiovascular system and the psychological changes observed. Small doses were generally employed, ranging from 10 to 30 mg., larger amounts only being used under strict supervision for experimental purposes. It was given by the mouth in the form of tablets.

### Blood Pressure and Other Cardiovascular Effects

The influence of small doses on the blood pressure is limited. Fluctuations of 10 to 30 mm., however, were sometimes observed. This degree of alteration falls within the limits of experimental error and normal physiological variation, but it was attributed to benzedrine when it was repeatedly observed in the same patient under exactly similar experimental conditions. Furthermore, the degree to which the blood pressure altered with the standard dose seemed almost constant for any individual. As a general rule benzedrine was given only to those who showed no cardiovascular disease; but a few cases who had extrasystoles, apparently of a functional type, were included in our experiments. We witnessed none of the severer complications reported by Anderson and Scott, but the more vasolabile subjects sometimes complained of dizziness, shivering feelings, palpitations, tremor, or anorexia. These symptoms were more frequent during the first hour after taking the drug, coinciding with the time taken for its full effect to develop. The speed of absorption seems to influence the occurrence of these reactions, so that it is inadvisable to give the tablets on an empty stomach. Other autonomic disturbances rather than the actual rise in blood pressure appeared mainly responsible for these symptoms, and sometimes they were precipitated or increased by physical effort and emotional upset.

### Psychological Effects

Benzedrine produces a general psychological stimulation. Subjectively this is experienced as increased confidence, initiative, and ease in making decisions, sometimes combined with a feeling of restlessness. There is also a pronounced impulse to talk more than usual. The restlessness may be pleasant or unpleasant, depending on the degree to which it is accompanied by the somatic symptoms described above; in the absence of these a pleasant sensation is reported which often amounts to a real degree of euphoria. Objectively, it is the increased talkativeness and activity which most impress the outside observer. Thinking processes appear to be speeded up without impairing attention, concentration, or judgement, and the features of total personality make-up that seem to benefit most are retardation, indecision, mild depression, and hesitation. It has already been shown that in certain cases intelligence test scores are improved (Sargant and Blackburn, 1936). Medical colleagues and others who have themselves taken benzedrine have found it of definite value in such tasks as lecturing or taking an examination. It also helps to remove mental fatigue brought on by excessive work or worry. Important interviews of various kinds have been tackled more confidently than usual under benzedrine, especially those requiring quick thought and ability to talk convincingly and fluently.

When the dose is sufficient to cause physical or psychological changes, disturbances of sleep are rarely absent. There is difficulty in getting to sleep, and sometimes patients wake up during the night or too early in the morning. This sleeplessness is not always unpleasant. It is reported by some as "lying contentedly in bed," in contrast with the distressing restlessness of the insomnia in many nervous illnesses. The effects of the drug often persist the following morning, so that the subject gets up

feeling surprisingly fresh and active in spite of the comparative lack of sleep. No changes in the blood pressure have been found to remain the following day.

*Normal Subjects.*—In different subjects there is a wide variation in the response to benzedrine. It has been found almost impossible to correlate exactly an individual's response to the drug with his personality make-up. This can only accurately be determined by trial. However, as a general rule it may be said that in the doses used benzedrine tends to exaggerate some of the innate characteristics of the personality besides producing the effects described above. For instance, one can assume that some of Anderson and Scott's subjects who complained of "a funny feeling not quite amounting to pain" seven hours after taking benzedrine must be somewhat hypochondriacal, as, indeed, was expressly stated in one of their case reports. We ourselves are diffident of giving the drug to people who have hypochondriacal tendencies. Mildly obsessional personalities may also be upset by it, but in this group there were some who responded extraordinarily well, especially hesitant individuals who show a tendency to obsessional doubt and difficulty in making up their minds about any small or unimportant matter. Persons with cyclothymic tendencies had by far the most constant and beneficial reaction from the drug, and it usually gave them a characteristic euphoria.

*Depressive Illnesses.*—Mild depression accompanied by retardation is the most favourable of all psychological disorders for benzedrine therapy. It has been found that these patients may be carried over periods of temporary disability by regular medication. In several cases the possibility of benefit being due to suggestion was ruled out by the occasional substitution of "inert" tablets which never produced the same effects. Severe depressions and depressive stupor do not react to the drug in the same way; small doses have little effect and heroic doses appear to produce anxiety symptoms. Other workers, in personal communications to us, have reported "dramatic" effects with 40-mg. doses in severe depressions, but it has been our experience that such improvement is transient and resists repeated medication. At the end of a depression, however, its use is more promising. It may enable a patient to start work or take the initial steps to social readjustment earlier than without it.

At the beginning of an endogenous depression it may also be of use by delaying for a time the onset of the more severe stages of the illness. For instance, it enabled one patient who felt he was developing one of his recurrent depressive attacks to carry on important work for an extra week and to make business arrangements for the period of his approaching illness. By the next week, however, the endogenous retardation was too severe to yield to the drug. It is interesting to note that Krapf (1936) observed a marked variability of the blood pressure at the beginning and end of endogenous depressions, while during the main period of the illness the blood pressure is relatively stable. Thus the periods in which benzedrine is most efficient appear to coincide with times at which the blood pressure is most variable.

*Anxiety States.*—Anxiety is common in many psychiatric syndromes, and when the somatic symptoms of anxiety, such as palpitation, tremor, etc., are prominent, benzedrine is usually contraindicated, as these symptoms are often exaggerated by the drug. A few patients, however, reported that they did not worry so much about anxiety symptoms when taking benzedrine, and some cases clinically labelled as anxiety neurosis considerably improved. This finding is probably due to the beneficial effect of benzedrine on symptoms of indecision or depression complicating the picture.

*Schizophrenic Illness.*—Because of the variety of clinical manifestations met with in schizophrenia it is difficult to make any general statement as to the effect of the drug. Nevertheless, certain patients may benefit—namely, those in whom there is a lack of initiative. These welcome the stimulation produced by benzedrine, and objective improvement in their activity also occurs. One of our patients, an artist who had given up drawing during his illness, started again when given benzedrine; but he only drew on his benzedrine days and not on the control days. Another patient convalescing from a schizophrenic illness reported a similar relief from his persistent feeling of fatigue and resumed playing the piano. It was impossible, however, to interrupt a schizophrenic stupor with the drug, and it definitely made some hallucinated and deluded patients worse. We found it particularly dangerous to give benzedrine to those in whom a superficial depression masked the underlying schizophrenic illness. It caused a severe exacerbation in the symptoms of one such patient, who would almost certainly have attempted suicide while under its influence had she not been subject to hospital supervision.

*Narcolepsy.*—The claims of Prinzmetal and Bloomberg, (1935) have been confirmed by our observation and those of others. One patient with idiopathic narcolepsy has taken 10 to 20 mg. a day for over a year with constant relief from her symptoms, which for many years had resisted other forms of treatment. We observed a similar effect in a patient in whom the narcoleptic attack appeared symtomatic of cerebral arteriosclerosis, and the narcoleptic attacks in the post-encephalitic syndrome are also lessened by the drug.

## Relation of Psychological Effects and Blood-pressure Alterations

Experimental observations on individual cases have shown that the rise in blood pressure and the psychological phenomena observed do not necessarily coincide in any individual. Patients with little alteration in blood pressure may exhibit profound psychological stimulation, and vice versa. This experimental finding in individual cases was borne out by recording the blood pressures of forty-eight subjects during intelligence tests under benzedrine. Ten of them increased their test scores by ten points or more, but it was found that only one of these showed a concomitant rise in blood pressure of over 20 mm. The cases with rises of 20 mm. or more, with this one exception, failed to attain the same degree of improvement in their test scores. We also saw a paradoxical fall in the blood pressure after giving 10 mg. of benzedrine to certain cases of anxious depression. We assume that in these cases the psychological effect of the drug was sufficient to influence the emotional tension (with its accompanying increase of blood pressure), while the dose was too small to have a physiological effect on the blood pressure itself.

## Practical Considerations

We have found that benzedrine gives the best results when used in doses of 10 to 30 mg. Larger amounts often produce so much palpitation, tremor, and rise in blood pressure that the concomitant psychological effects are apt to be destroyed. The smallest dose that will bring about the required psychological stimulation should always be used, and this is determined by starting with a dose of 10 mg. and then increasing it if necessary. The drug

should be given before midday if sleeplessness is to be avoided; on the average the effect tends to remain at a maximum for about five hours and takes an hour or more to develop fully. The psychological stimulation is not always maintained on continuous daily administration. Some patients complain that it loses its euphorizing effect after a few days, while the disagreeable features become more predominant.

The possibility of addiction needs to be guarded against, and the case of a person who had been purchasing benzedrine at chemists' shops without medical supervision has already come to our notice, though none of our own patients have so far shown a tendency to addiction. The preponderance of disquieting somatic symptoms over the feeling of euphoria when large doses are taken, and the sleeplessness, make us think that addiction will be rare. At present, however, benzedrine may be purchased at any chemist's shop without prescription, and this seems inadvisable with a drug all the properties of which have yet to be fully investigated. It must also be emphasized that the therapeutic indications for its use apart from the treatment of narcolepsy have not been exactly formulated. It is to be hoped that this drug will not be discredited by misuse.

We wish to thank Professor E. Mapother for his kind permission to use the clinical material of the Maudsley Hospital and Dr. F. Pilkington for help in the preparation of this paper.

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M. Dechaume (*Presse méd.*, March 24, 1937, p. 451) reports a case in which intense pain followed the removal of a wisdom tooth from the lower jaw on the left side. Extraction was carried out under local anaesthesia, and during the process severe pain radiating to the ear was felt, and the operation could not be completed until the nerve trunk had been injected. A small filament resembling a nerve came out of the socket, and this was cut off, slight pain being felt in the chin during the process. This was followed by intolerable pain in the left half of the face. Three days later an injection of novocain, without adrenaline, was given around the facial artery so as to paralyse the sympathetic nerves, and this relieved the pain. The following day severe pain recurred, but became less intense after a second injection. On examination the socket was found to contain pus, and as an antiseptic could not be used on account of the pain a plug of gauze soaked in novocain was applied for several seconds. During the next week symptoms subsided, with the exception of anaesthesia in the left half of the lower lip and chin. It is pointed out that, although it was unusual that a nerve should have been torn during the removal of the wisdom tooth, this could not have been foreseen. Injection of the sympathetic for relief of pain has been tried successfully in other instances. The injection causes a vasodilatation and increases the blood supply to the part, but the effect is transitory and the treatment must be repeated.

# TECHNIQUE IN OPERATIONS ON THE KNEE-JOINT*

BY

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The knee-joint has been derived from the fusion of three articulations, and this makes it the most complex as well as the largest joint in the body. It is only comparatively recently that this field has been made safe for surgery, and the layman still has a fear that the removal of a semilunar cartilage may leave him with a stiff knee. Such an event is now a rare calamity, but it has occurred and still occasionally does so. Knee-joint surgery is recognized to demand the most careful technique, and I am going to describe a scrupulously careful procedure which stops short of fussiness. At the same time we shall have an opportunity of seeing that technique in these cases must include the care of a patient both before and after the operation.

The chief bogy is sepsis, and it can only arise in one of two ways—namely, by infection from without—that is, errors in aseptic technique—and by infection from within—that is, from a focus of infection elsewhere in the body. We must note that either of these events is greatly facilitated by the presence of blood in the joint. Blood is an excellent culture medium for organisms, and both a haematoma and a haemarthrosis are readily infected from without or from within. We all know that a haematoma in an operation wound prolongs convalescence for only a few days if it is at once evacuated, but becomes a much more serious trouble if it lies hidden until infection has occurred. A haemarthrosis differs from a haematoma only in its size and the character of its limiting membrane. A dry joint is probably quite able to cope with occasional organisms, which rapidly, however, become a massive infection when incubated at body temperature in a large blood-filled synovial cavity.

## Preliminary Examination

Preliminary examination of all patients with cartilage injuries should include examination of the teeth. It is certainly dangerous to open a knee-joint while dental sepsis remains untreated. If any extractions or fillings are necessary it is wise to allow at least three weeks to elapse before opening the knee-joint. Equally, any other infection, such as tonsillitis, boils, or an infected antrum, demands postponement of the operation until the potential danger has been removed.

## Preparatory Dressings

The skin is one of the chief dangers: the preparatory dressing is an important prelude to the operation, and a couple of days is not too long to devote to it. No procedure can make the skin completely sterile because antiseptics can only act superficially. We must do the best we can and then proceed on the assumption that we have only been partly successful. The whole limb from the toes to the groin is first shaved and then washed with soap and water. Methylated spirit compresses are applied to this area for twenty-four hours, and a solution of iodine in spirit is next painted on the skin. The whole limb is then covered with sterile towels, which are

* Based on a lecture delivered at the Hospital for Sick Children, Great Ormond Street.

bandaged firmly in position and left alone until the surgeon directs their removal at the beginning of the operation.

### Operation

It is the surgeon's duty to develop a safe technique, but he is equally concerned with that of his assistants, who are probably less familiar with the requirements of the situation but are none the less capable of ruining an operation. We shall assume that there are two assistants—namely, the surgeon's immediate assistant and the theatre nurse, who is dealing with swabs, instruments, and sutures.

### The Theatre Nurse

Anyone who undertakes to thread needles or hand ligatures ought to be able to do this without touching the needle or suture material with the gloved hands. There is no particular difficulty about it when once the necessity is realized, and anyone can do this with a little practice. The dangerous politeness of holding an instrument by its point and passing it handle first to the surgeon is forbidden, and instruments are passed with forceps. The fingers must not touch that part of any instrument which is now or in the future going into the wound. The passing of swabs must also be done with instruments, for it is futile for the surgeon to be careful if the nurse is careless or untaught, and vice versa. The strength of the aseptic chain is that of its weakest link.

### The Assistant

What has already been said about sutures and instruments applies equally to the assistant, with the added special warning that double-ended retractors are dangerous in most people's hands. All swabbing must of course be done with forceps, and no swab should be used twice. The wound must not be rubbed, but firmly dabbed and wiped from within outwards, never from without inwards. Some assistants love to swab a dry wound just to look busy and co-operative: they insult the tissues and their own intelligence. Better a lazy than an over-zealous assistant in knee-joint operations.

### The Surgeon

The anaesthetized patient is laid on the operating table in the dorsal position with the line of the knee-joint half an inch below the hinge of the table's foot-piece. A nurse uncovers the big toe, which the assistant grasps with a swab. He elevates the whole limb whilst the preparatory dressing towels are removed. A large towel is slid under the limb and another is placed across the abdomen, while a third and smaller towel covers the foot and leg below the knee-joint and is secured with a sterile bandage. This method of fixation is much better than any number or any make of towel clips.

An Esmarch rubber bandage is then applied spirally from the toes to the upper third of the thigh, where it is secured with three superimposed tight turns and three looser ones. The lower part of the tourniquet is then removed, the operation area painted with iodine, and a small towel placed over the thigh immediately above the patella. The operating table is now pumped up to its full height, the foot-piece is lowered or removed, and the surgeon takes his seat on a stool of such a height that the patient's foot is resting on the operator's knee. Some surgeons operate with the knee on an adjustable wooden frame, but my own preference is for the leg hanging over the end of the operating table so that movements of rotation are easily carried out during the operation and a direct view of the joint is obtained. In this position, however, it is particularly dangerous to cough or even talk into the wound. Probably the ordinary type of mask is unreliable, and anyone who opens a knee-joint while suffering from a cold, influenza, or sinusitis takes risks.

Operations on the knee-joint are by no means easy, and the difficulties are largely those of space and light. The latter is greatly improved by the use of a head-light, even in an undarkened theatre, and it is worth anybody's while to acquire a certain dexterity with this unorthopaedic adjunct. The surgeon must of course observe the same rules as he imposes upon his assistants in the matter of handling swabs, instruments, and sutures.

The incision is made straight down through the skin and fat until the capsule of the joint is reached. At this stage many surgeons apply skin towels to the edge of the wound, but I look upon this as a piece of self-deception. It is difficult to get them to lie close on a curved wound, and they are inevitably contaminated by subepithelial organisms which they smear into the deeper tissues. Most skin-towel clips are ineffective and only succeed in occupying some of the available space through which the surgeon gains access to the joint, so that they compel a longer incision than is really necessary. If the skin towels are waterproof some of these objections have less weight, but I still believe the operation is safer without them if the following procedure (Dunn) is adopted:

The cut edge of skin and fat is sterilized by lightly swabbing with iodine solution; the knife is then discarded or sterilized and the joint capsule incised for the same length as the skin incision.

Procedure inside the joint will be determined by what the surgeon finds, but there are two instruments which are particularly useful, though neither of them was designed for knee operations. The first is a very sharply curved Lane's cleft-palate elevator, which is better than a sharp hook or aneurysm needle for dragging forward the crescentic edge of a semilunar cartilage before severing its anterior attachment. The second is Denis Browne's gland-holding forceps, which, owing to its rat-bite grip, allows the necessary hard pull on the freed anterior portion of a cartilage during the removal of its posterior part. I use an ordinary narrow-bladed scalpel for removing the cartilage, though there are two or three specially designed patterns on the market.

The procedure to remove a damaged cartilage is as follows:

Hook forward the anterior horn and divide its attachments. Seize the part so divided, together with any split fragment such as a bucket-handled cartilage, and pull it towards the centre of the joint while you cut along the periphery of the cartilage for half its circumference. Now take a new and deeper grip on the cartilage, rotate the foot away from it, and pull quite hard on the cartilage while the point of the knife stabs and snicks the remaining peripheral attachment as far back as can be reached.

If the posterior horn is attached normally you should now cut across the cartilage and leave the posterior one-fifth behind, but if trauma has detached it you will find (as Naughton Dunn points out) that it plops forward and you can then easily remove the whole structure intact. It seems reasonably certain that a small posterior normal fragment can be left behind with impunity, but of course there will be trouble if a detached posterior horn is not removed. In my view a posterior incision is rarely necessary, and should be reserved for examples of what might be called "failed anterior approach." I have yet to meet

one in my own operated cases, which makes me think that complete transverse tears through the posterior part of the cartilage must be uncommon.

The under-surface of the patella and as much as possible of the opposite semilunar cartilage should be examined as far as the incision allows before closing the joint.

The capsule is sutured with a continuous catgut stitch in two layers. Iodine is again applied to the edges of the wound, which are approximated with a continuous suture of silkworm-gut.

### Dressing

This is a most important part of the treatment of these cases. The tourniquet is still in position and the joint cavity free from blood. A slack dressing will allow effusion when the tourniquet is removed, whilst a very tight bandage will obstruct the circulation and cause oedema below the knee. The best and safest dressing is the following (Bankart):

A generous amount of gauze and wool is applied to the knee-joint whilst the rest of the limb from toes to tourniquet is wrapped in cotton-wool to the thickness of an inch or more. A series of 6-inch bandages is then applied really tightly from below upwards, so that a steady elastic pressure is maintained not only on the knee-joint itself but also upon the area of the limb below and above it. The tourniquet is finally removed and a layer of wool and a firm bandage takes its place. Providing there are no constitutional disturbances this wool compress is left untouched until the stitches are removed on the eighth day, and the patient next day starts walking and begins a course of faradism to his quadriceps. I firmly believe that this simple method of treating operated knees is a most trusty safeguard against the troublesome and indeed dangerous haemarthrosis which occasionally follows other methods.

### Post-operative Care

No splint is necessary and the patient moves his limb as much as he cares to do. Active contraction of the quadriceps muscle with the knee straight may be practised in bed after the second day, and walking, rowing, and cycling exercises are encouraged as soon as the stitches are removed.

### Complications

1. *Haematoma* occasionally occurs between the skin and the sutured capsule. If the temperature is raised above 100° F. on the second or third day the dressing should be at once removed and the wound inspected and palpated. If its edges are bluish-red and the operation area is indurated but the joint itself normal a probe must be inserted between two stitches, the blood evacuated, and the wool compress replaced. This generally closes the incident.

2. *Haemarthrosis.*—The patient is never really comfortable after operation, and his temperature rises with his pain until it may reach 103° in a day or two. The knee-joint is so distended and painful that morphine may be required. Aspiration at once relieves the patient's pain and the surgeon's anxiety, but gradual subsidence is usual even if nothing is done, though perhaps this inactivity risks infection from the blood stream.

3. *Stitch abscess* occasionally occurs two or three weeks after the operation, but clears up rapidly on removal or discharge of a small piece of catgut. Usually it is quite superficial and does not delay convalescence.

4. *Passive effusion* into the knee-joint commonly appears when the patient begins to get up. It is generally attributed to quadriceps insufficiency, and is best treated by daily faradism to the quadriceps with a wool pressure bandage over the joint. The effusion is serous and does no harm if it is actively treated from the outset.

### General Convalescence

It is often six or eight weeks before full, free, and painless movement is regained after a straightforward operation for a cartilage injury, but exercise and some forms of sport are possible a good deal earlier, and the patient can usually resume his ordinary life two or three weeks after operation.

The results of these operations are most gratifying to both patient and surgeon, but diagnosis must be exact, and anyone who undertakes knee-joint surgery ought to be able to feel that his technique is as safe as he can make it.

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## TREATMENT OF SOME ERRORS OF METABOLISM AT BRITISH SPAS*

BY

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After a number of years' practice at a spa one comes to definite conclusions as to the type of case which does best and which obtains the most relief from a "cure" there. My own experience leads me to believe that the most suitable are those due to some error of metabolism in which the liver is the chief offender; among these may be mentioned congestion of the liver, disease of the gall-bladder, gout, gouty glycosuria, so-called gouty eczema, some forms of obesity, and certain chronic rheumatic states.

In using the term "spa treatment" I refer to definite balneological treatment—that is, treatment with waters and baths—and not to other forms of physiotherapy, such as diathermy, ultra-violet rays, massage, etc.

During recent years the medical profession would appear to consider that spas are useful only in the treatment of chronic rheumatic diseases, and it is by no means unanimous even on this point, as at the discussion on the treatment of chronic rheumatic diseases at the Oxford meeting Dr. H. L. Tidy (1936) confessed scepticism regarding the advantages of spa treatment over hydrological treatment away from a spa. The profession seems to have forgotten that the spa is primarily and particularly useful in the treatment of disturbances of metabolism.

I had not been long in spa practice before I noticed that patients with disturbances of liver function, simple congestion, enlargement due to long residence in the Tropics or associated with gastro-intestinal catarrh, all did well; cases of plethoric gout and glycosuria associated with gout improved enormously under the administration of mineral waters and baths. Further, it was observed that patients coming for treatment for sciatica or other rheumatic conditions often gave the information that they had been under treatment at a spa a number of years previously for an attack of gall-stones, or gall-bladder disease, from which they had since been quite free; also that certain cases of rheumatism cleared up with waters

* An elaboration of part of a lecture on spa treatment read before the Ayrshire Division of the British Medical Association, December, 1936.

alone and without any treatment other than mineral water baths—that is, cases due to metabolic disturbances.

We have in Great Britain a number of spas which are particularly suited for the treatment of these metabolic errors—Cheltenham and Leamington with their sulphated waters, and the sulphur-saline group of Harrogate, Llandrindod, and Strathpeffer. Unfortunately the exact physiological actions of these waters (with the exception of the Old Sulphur Well at Harrogate) have never been worked out, and the evidence of their usefulness is entirely clinical. We know from such clinical evidence that the waters of Cheltenham and Leamington in full doses are purgative in action and stimulate peristalsis; that they are useful in the reduction of fat and abdominal plethora, also in catarrhal jaundice and hepatic congestion, uric acid, gravel, gout, and gouty glycosuria. The sulphur-saline waters contain large quantities of sodium chloride, are purgative in action, and effect a marked increase in the output of bile. Laborious investigations on the Old Sulphur Well at Harrogate were carried out first by William Bain and secondly by David Brown and Woodmansey. The physiological and clinical evidence shows that this water is especially useful in abdominal plethora, hepatic congestion, certain forms of toxaemia, gout, sequelae of malaria, metallic poisons such as lead and mercury, some forms of skin disease, and also of rheumatic disease. Harrogate possesses half a dozen other sulphur wells which are used for internal treatment, and which vary in the strength of their chloride and sulphur contents. The waters of Strathpeffer stand in a separate category: the chloride content is small, and the purgative effect is produced by the presence of magnesium salts in fairly large quantities. The sulphur content is mainly in the form of $H_2S$.

### Congestion of the Liver

The liver helps to prepare all three food materials—proteins, fats, and carbohydrates—for utilization by the tissues, and acts as a clearing station between the portal and systemic circulation. This much-abused organ is slow to respond to continual insults, and when gastric symptoms reveal dietetic failings, the liver, less obvious in its response, is nevertheless the sufferer. The excessive flow of abnormal intestinal toxins, by placing an unnatural strain on the function of the liver cells, leads to congestion producing tenderness on palpation and a sense of weight in the hypochondrium, and the urine contains large quantities of abnormal constituents.

Congestion of the liver due to overeating, alcoholism, insufficient exercise or stasis in the circulation, sedentary occupation, habitual constipation, or induced by diseases of the heart, lungs, or uterus, improves much by a course of any of these waters. In the Tropics prolonged exposure to high degrees of temperature combined with over-full and over-rich feeding, alcohol, and deficiency of muscular exercise tends to produce a hyperaemia which passes into congestion with blood stasis and sometimes frothy diarrhoea; such patients do remarkably well with any of the above mineral waters.

The benefits derived from the internal use of these waters is materially assisted by the external use of packs—mustard and mud—applied over the liver and followed by a needle-bath, along with such hydrological treatment as massage-douches and immersion baths. Early cases of cirrhosis of the liver, even when associated with ascites, do well under such treatment, and improvement is maintained provided there is complete abstinence from alcohol. Where anaemia is associated with these conditions the course of sulphur or sulphated water can be followed up by one of the mild iron waters that are to be found at many of these spas, such as the Kissingen and Crescent saline springs at Harrogate.

### Diseases of the Gall-bladder

In most instances the treatment of this condition is symptomatic, and no attempt is made to strike at the underlying causes. Usually once the case is diagnosed by *x* rays as one of gall-stones the surgeon is called in. Gall-bladder disease is practically always a secondary condition. Rehfuss and Nelson (1935) consider that there are three fundamental factors in its causation—(1) the metabolic; (2) the problem of infection; (3) the question of stasis.

1. *The metabolic factor* involves several organs: the liver, which manufactures bile; the gall-bladder itself, which collects the bile and acts as a reservoir and appears also to concentrate the bile, as the bile leaving the gall-bladder is more concentrated than the hepatic bile; the nervous mechanism, which concerns the expulsion of bile; the intestinal canal, which is itself drained by the portal system. Analysis of hepatic and gall-bladder bile shows that the cholesterol content of the latter is much greater than can be accounted for by the concentration which takes place in the gall-bladder. Considerable importance attaches to the bile salts which are elaborated by the liver cell, the cholates which in some way tend to hold cholesterol in solution. The bile acids are divided into two groups—glycocholic acid and taurocholic acid, the former on decomposition yielding glycol and choline, the latter having particular influence on fat metabolism. Fats act as a strong stimulant for the contraction of the gall-bladder, and therefore a low fat diet will act as a splint to the gall-bladder by helping to prevent contraction, and a low cholesterol dietary should be beneficial in reducing bile cholesterol. To-day we distinguish choleretic drugs which appear to affect the liver cell, and cholagogues which affect gall-bladder function.

The portal system draining the whole intestinal canal is another metabolic factor of great importance. The majority of gall-bladder cases have a history of constipation with resulting toxaemia and a heavier burden on the liver cell.

2. *The Infection Factor.*—Most pathologists now accept the view that infection is by the systemic circulation, and it is not probable that it creeps up the common duct from the duodenum. Foci of infection in the teeth, tonsils, sinuses, and bowel, as in arthritis, are presumed to play a large part.

3. *Stasis.*—This question is still *sub judice*. German workers at one time laid great stress on this factor. Visceroptosis and the asthenic habitus may have some part in its production.

### Treatment of Gall-bladder Cases

Much will depend on whether the case is one of cholecystitis (i) associated with gall-stones, (ii) without gall-stones, or (iii) jaundice in the non-calculous cholecystitis. Diagnosis of these three varieties is essential—a radiograph is of primary importance, and where there is jaundice the employment of the van den Bergh test is essential. When the condition is associated with the presence of gall-stones the question at once arises whether operation is necessary and when it should be carried out.

Wilkie (1934) recently laid it down that in well-established cases of infection of the biliary passages with gall-stones surgery was the rational treatment, but if surgery

was to be undertaken the preliminary preparation of the patient was as necessary as the operation. For many the operation was a great ordeal; and he referred to the diminished mortality in cholecystectomy due to doubt to increasing surgical experience, but in the main to the increased attention to the pre-operative regime. When cholaemia supervened benefit had been found by the application of heat through the lower part of the chest, and we must get away from the idea that we are not dealing with obstruction due to stone, or irritation due to stone, but with a disordered physiology which affected the liver. If these remarks apply to gall-bladder disease with the presence of calculi, they apply even more to cholecystitis without calculi, and also to non-obstructive jaundice.

Non-surgical treatment is of three kinds: (*a*) dietetic; (*b*) medicinal; (*c*) balneological.

(*a*) *Dietetic.*—The dietary in the pre-operative case of gall-stones is of great importance. Two points must be observed: (i) to keep the gall-bladder at rest; (ii) to try to diminish the cholesterol content of the bile. Therefore fats and fatty foods should be avoided. Butter, fats, all fried foods, duck, goose, pork, cheese, and fatty fish such as salmon, mackerel, and herring should be removed from the dietary, also eggs as being rich in cholesterol. Milk, as ordinary butter-milk and skimmed milk, may be taken, and vegetables, lean meats, poultry, and non-fatty fish, all either grilled or roasted, but never fried. Where there is no evidence of calculi it may be necessary to assist the gall-bladder to contract, and a diet containing fats may be ordered.

(*b*) *Medicinal.*—It has already been shown that there are two varieties of drugs: the choleretic which act on the bile-forming function of the liver, and the cholagogues which act on the gall-bladder function. There is, however, no absolute distinction, because many "cholagogue" drugs have a "choleretic" action. Sodium sulphate is one of the oldest of the cholagogues employed, and is the chief constituent of the springs at Cheltenham, Leamington, and Carlsbad: it has been shown that its administration is followed by a distinct fall in blood cholesterol. There are numerous vegetable cholagogues, such as podophyllin, euonymin, aloes, iridin, etc. Ox bile, however, is probably the best cholagogue known, and the preparations decholin, colalin, or panbiline, prepared from the active constituents of bile, may be employed. Decholin is reputed to have an effect on the liver cells as well as on the gall-bladder. William Bain (1935), working on a human subject with a biliary fistula, showed that the ingestion of the Old Sulphur Spring water at Harrogate promoted an increase in the flow of bile in both total quantity and total solids, and no other drug or mineral water, such as euonymin, iridin, etc., gave such a striking increase. Bain also claimed that this effect was in part due to stimulation of the hepatic cells. Brown and Woodmansey (1929) investigated the effects of this water on the general metabolism: using human subjects, they found that during the period when the water was being taken there was an increase in the amount of total solids excreted by the kidneys and sweat glands. A marked increase in the excretion of sulphur by way of kidneys, bowel, and sweat glands was recorded. This increase was greatly in excess of the amount contained in the water ingested. They also reported an increase in the excretion of total nitrogen, creatinine, uric acid, urea, and hypoxanthin, as well as the elements calcium, potassium, and manganese. The ions of barium and sodium were found to be retained in the body. They therefore conclude that the drinking of strong sulphur water causes an increase in general metabolism. They also found that this water has strong bactericidal properties. Bain made further experiments with the Harrogate springs on the isolated heart and on the intact animal, and found that blood pressure and cardiac systole are both gently increased with the strong sulphur water. These physiological findings support the clinical evidences with which we have been familiar for many years.

(*c*) *Physical and Balneological.*—At eliminative spas, such as Cheltenham, Leamington, and the sulphur-saline spas, the accompanying constipation may be benefited by intestinal lavage, reinforcing the mineral waters taken by mouth. Heat in the form of mustard or mud packs combined with needle-baths, massage douches, or hot immersion mineral water baths are all aids which are at hand and should not be neglected.

### Gout and its Treatment

Clinical evidence has taught us that certain manifestations of disease, such as occur in eczema, phlebitis, or bronchitis, are of a gouty nature. Gout may be regarded as an inborn error of metabolism, though it is quite possible that foci of infection may be the causal agent in precipitating an attack. Acute gout is not as evident as it was thirty years ago, but there are indications that it is on the increase again, though probably in a less acute form. The young physician of to-day is apt to look on this disease as a pathological rarity, but I am confident that many cases of the milder types are overlooked and are diagnosed as rheumatism, arthritis, or cellulitis. A history of mild attacks in a single joint, the presence of tophi, a history of heredity, biochemical findings—that is, raised blood uric acid over 3.5 per cent.—hypercholesterolaemia, *x*-ray findings—that is, punched-out areas of rarefaction in articular ends of bones— point collectively to a case being one of gout.

The spa treatment of gout comes under two categories—treatment of a recent acute or subacute attack on the one hand, and prophylactic measures against recurrence. In treating acute gout, spa treatment is harmful while any inflammatory signs are still present. This is one of the pitfalls of spa practice, as too energetic treatment is apt to cause a recrudescence of the disease, no matter whether the water of Bath, Buxton, or sulphur spa is employed. A few days' rest in bed on arrival at the spa, with the internal administration of colchicum and calomel, will usually prevent a relapse. The internal administration of mineral waters, such as those of Bath and Buxton and the mild sulphur, can then be employed along with local applications of peat and mud or hot air. Caution must be observed with baths which involve massage or other physical measures, and ordinary exercise must be curtailed. No definite rule can be laid down; the physician has to feel his way with each individual case. Cases of gouty glycosuria usually clear up after three or four days' treatment, and cases of gouty eczema often do so on the sulphur water alone without the aid of alkaline sulphur baths.

*Diet* is important in all cases. Lockie and Hubbard (1935) have found that diets high in fat and low in carbohydrates and protein tend to precipitate an attack with an increase of hyperuricaemia. These findings have not so far been confirmed in this country, but they should be borne in mind. When spa treatment is used as a prophylactic measure one must still be on one's guard against precipitating an attack, otherwise more active measures may be employed.

R. G. Gordon (1936) in a recent paper drew attention to the metabolic factor in chronic rheumatism, with special reference to fibrositis, and observed that the pendulum had swung too far, and that we must consider some cases of chronic rheumatism to have a gouty basis, quite apart from the question of the presence of a focus of infection. This same viewpoint I raised at the discussion on chronic rheumatic diseases at the Oxford meeting of the British Medical Association last year. Further, I pointed out that there were cases where there might be no evidence of an infective focus. For instance, patients tell you that they get pains and aches in their muscles (a sprained feeling) after drinking beer or Burgundy; after eating strawberries, asparagus, etc.; or after taking a purge; and patients suffering from glycosuria often complain of such symptoms. Another group of patients will tell you that when they get out of bed in the morning their feet feel tender, their hands are stiff, and their grip is weak. By the time they have completed dressing this discomfort has passed off. On examination there may be no physical signs beyond perhaps some tenderness on squeezing the metacarpo-phalangeal joints as in a vigorous handshake. Such cases improve much by the use of sulphated or sulphide waters, and by trying to correct the errors of metabolism, quite apart from general physical treatment.

### Post-malarial Cachexia

The waters of these spas are also distinctly useful in the cachexia following malaria. Enlargement of spleen and liver derives much benefit from a course of these waters, combined with baths, exercise, change of air, etc. In the winter and early spring Cheltenham and Leamington are more suitable, while in the summer months the more bracing climate of Harrogate and Strathpeffer works wonders. In fact, I know of no type of case which shows greater and more rapid improvement with a course of these waters. Many residents in the Tropics, from India, Malay, West Coast of Africa, etc., make it a practice to have a "cure" during their periodic leaves home, mainly as a prophylactic measure.

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A comprehensive survey of obesity and emaciation due to pathological causes, by Professor Francesco Galdi of Pisa and three of his colleagues, is published in the proceedings of the forty-second congress of La Società Italiana di Medicina Interna, held in Rome in October, 1936. The authors comment on the extensive literature, especially from German and American sources, dealing with obesity, and the comparative neglect of pathological loss of flesh. The relation of metabolism, of the nervous system, and of the endocrine glands to these conditions is fully discussed, and some sixty pages are devoted to more detailed separate analyses of the metabolism of proteins, carbohydrates, and fats. Following a description of the pathological anatomy of both conditions, the several forms of obesity and emaciation are considered in their clinical aspects.

# POST-SCARLATINAL NEPHRITIS

## A STUDY IN PREVENTION


BY

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By giving large amounts of alkalis in the course of an attack of scarlet fever Carter and Osman (1927) showed that a considerable reduction in the incidence of nephritis occurred in cases so treated compared with a control series. Peters (1932) brought forward evidence showing that the administration of thyroid and iodine for the first fortnight of an attack of scarlet fever was followed by a considerable fall in the incidence of nephritis.

Below is given a table showing the incidence of post-scarlatinal nephritis in five-year periods during the past twenty-five years in Ham Green Hospital.

TABLE I

| Period | Total Cases of Scarlet Fever | Cases of Nephritis | Percentage Incidence of Nephritis |
|---|---|---|---|
| 1910–14 | 2,771 | 53 | 1.92 |
| 1915–19 | 1,329 | 25 | 1.88 |
| 1920–24 | 2,496 | 63 | 2.5 |
| 1925–29 | 3,148 | 28 | 0.88 |
| 1930–34 | 2,427 | 9 | 0.37 |
| 1935–36 | 1,350 | 43 | 3.2 |

Thyroid and iodine were given during the period of 1930–4. Comparing the different incidence in the two periods of lowest prevalence, it will be found that the difference is 2.3 times the standard deviation. The difference is very much higher if the whole twenty-five-year period is taken into consideration. On these grounds we were disposed to think that our method was proving effective, especially as 1930–4 figures include two cases which were admitted with nephritis already present in whom preventive methods had not been applied.

In the winter of 1934–5 a more severe type of scarlet fever appeared. It was characterized by a great increase of secondary attacks whilst in hospital; by several second attacks in patients within a few weeks of discharge; by the increase of our return case rate to three times its normal number; by an increase of all the more severe complications; and by the occurrence of attacks of scarlet fever in six Dick-negative reactors among the staff, an event which had not occurred for many years.

In spite of administering thyroid and iodine, cases of nephritis cropped up with distressing frequency. We therefore investigated our method afresh, using alternate cases as test and control. Table II shows the result of this investigation. By the term "albuminuria" is meant symptomless albuminuria for three consecutive days or longer. "Nephritis" includes cases with signs or symptoms of renal failure. The observation of the sedimentation rate of the red blood corpuscles by Cookson (1936), working in this hospital, suggests that there is a sharp line of demarcation between the two conditions.

TABLE II.—*Series of Scarlet Fever Cases Treated with Thyroid and Iodine and Controls*

| | | Albuminuria | Nephritis |
|---|---|---|---|
| Test cases .. .. .. | 165 | 34 (21%) | 11 (6.6%) |
| Controls .. .. .. .. | 162 | 26 (16%) | 9 (5.5%) |

It was evident that our method was having no beneficial effect in this type of scarlet fever. We therefore submitted another series of alternate cases and controls to Osman's method, giving the alkaline mixture to the test cases in the doses he recommended continuously throughout the period of their stay in hospital, while the controls received alkalis for the first two days of their stay in hospital only. The results are shown in Table III.

TABLE III.—*Series of Scarlet Fever Cases Treated with Alkalis (Osman's Method) and Controls*

| | | Albuminuria | Nephritis |
|---|---|---|---|
| Test cases .. .. .. | 124 | 15 (12.1%) | 5 (4.3%) |
| Controls .. .. .. .. | 134 | 25 (18.6%) | 6 (4.1%) |

In this series it was also evident that no statistically significant improvement was being effected by Osman's method. On referring to Table I it will be seen that the incidence of nephritis was higher during 1935–6 than during any other period in the last twenty-seven years in Bristol.

### Conclusion

It would appear that the various strains of streptococci causing the symptoms of scarlet fever vary greatly in their power of producing renal complications, and that methods which seem to be effective in a controlled series of cases in preventing the complication of nephritis caused by certain strains may fail completely against other strains. A reliable means of preventing this serious complication which is effective against all strains of streptococci is still to be found.


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R. B. Engelstad (*J. Radiol. Électrol.*, February, 1937, p. 53) reports the results of radium therapy in fifty-six cases of cancer of the buccal cavity. These included cancer of tongue, of the mouth proper, and cancer of the gums. The treatment consisted of teleradium therapy alone, or teleradium therapy plus radium implantation plus electrocoagulation, or of teleradium therapy plus surgical operation. The cervical metastases were treated either by teleradium therapy or by teleradium therapy plus operation. The source of radiation for the teleradium therapy consisted of a radium unit containing 2,600 mg. of radium element. The distance between the source of radium and the skin varied between 5.7 and 12.5 cm. Several fields were irradiated depending on the size and situation of the tumour. One field was treated each time and the dose varied between 3 and 6 Dominici units (1½ to 2 hours), and a total of 50 Dominici units was applied. Skin and other reactions all cleared up in two to three weeks. The results of the treatment of the fifty-six cases were as follows: 1½ to 4 years' cure, twenty-nine patients (53 per cent.); cure after recurrence, three patients; cured for the time being, thirty-two cases; alive but not cured, four cases; dead, twenty cases (36 per cent.).

# CARCINOMA OF BREAST WITH WIDESPREAD METASTASES

## TWO CASES OF RECOVERY


BY

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I venture to report these two cases in view of the extremely satisfactory results which followed treatment. Both were cases of mammary carcinoma in which widespread metatases had occurred, and both patients are now, between one and two years after cessation of treatment, in good health and free from any sign of carcinoma. One of them had had no operation, as she did not present herself to a doctor until the disease was too far advanced for surgery; the other had had a radical amputation of the breast eighteen months before the presence of secondaries was discovered and treatment begun.

### Case I

An unmarried lady of middle age was sent to me in August, 1934. There was in her right breast, adherent to the skin, a carcinomatous lump, which was broken and discharging slightly. There were secondary glands in the axilla and above the clavicle, and also secondary deposits in several bones of the thorax and shoulder-girdle. Her general condition was very poor. I thought she was not fit for intensive *x*-ray therapy, and suggested that she should submit to a course of treatment by Todd's method. She agreed to this, and after some delay treatment was begun early in November. At that time she was entirely confined to bed, and had to be brought by ambulance and stretcher for all *x*-ray treatment. She was wasted and had much pain, for which morphine had been necessary. She took food badly and was often sick.

On beginning treatment all morphine was stopped. She was given a weekly intravenous injection of compound colloid of selenium and sulphur, followed two days later by a mild dose of high-voltage *x* rays; a dressing of Paré's ointment (lead amalgam) was applied to the breast. It was found impossible to give her the calcium mixture recommended by Todd; she could not tolerate it, and she only took radiostoleum and thyroid extract intermittently. Her veins were very small and there was considerable difficulty with the injections, which led to some delays and irregularity in the course of the treatment. Eventually the injections had to be stopped altogether—sooner than would have been the case under more favourable circumstances. The breast began slowly to improve not very long after starting treatment, but otherwise there was no change, except some relief from pain.

In the early part of 1935 there was complaint of fresh pain in the lower part of the back and pelvic region, and radiographs revealed extensive secondary deposits in the spine and pelvic bones. The outlook appeared very gloomy, but nevertheless treatment was continued. The one bright spot was the condition of the breast, which by this time had vastly improved. I must pay tribute to the patient's perseverance and great tenacity of purpose. General improvement became evident at last in April, 1935. Pain was much less and the sickness stopped; the appetite improved, and before long the patient was eating more than she had done for years. In the middle of May she could sit up out of bed, and on June 1 was just able to take a walk in the garden. No treatment was given between the end of July and the middle of October.

Her general condition was then quite good and she had put on a lot of weight; the breast was quite healed, and little or nothing could be felt of any glands. Pain was practically non-existent, and she was getting about freely. Radiographs, however, still showed extensive patches of rarefaction in the bones affected, though there was some indication of fresh mineralization. I did not think it wise to attempt a further course of intravenous injections on account of the great difficulty experienced before, but I gave another course of high-voltage *x* rays in moderate doses, covering the whole trunk and extending over a period of two months. At the same time she was able to take continuously a calcium mixture, radiostoleum, and small doses of thyroid extract.

There has been no treatment since December, 1935. The breast was then quite normal, apart from pigmentation of the skin near the nipple; glands were scarcely recognizable, and the patient's general health was good. She had put on 3 st. in weight, and there was no evidence of any active disease, though mineralization of the old centres of disease in the bones was not yet complete. In spite of a severe attack of shingles, with varicella, in the spring of 1936, which kept her in bed for many weeks, there has been no recurrence of the carcinoma. I have seen her recently and found her in good health, though complaining of being too fat! There is no sign of any disease, and the bones have almost entirely recovered their density.

### Details of Treatment

It may be well to give a summary of the treatment employed, with details of dosage and times of administration.

Between November 4, 1934, and April 2, 1935, intravenous injections of colloidal selenium and sulphur were given ("SSe," prepared by British Drug Houses). The initial dose was 2 c.cm., and throughout the course no single dose was more than 4 c.cm. The injections were given every week, except for an interval of three weeks between November 25 and December 17, one of a fortnight between January 29 and February 12, and one of three weeks between March 12 and April 2.

Two days after each injection *x*-ray treatment was given. Usually two areas were irradiated at each sitting, but sometimes only one. The dosage employed was somewhat variable, but was always between 75 and 100 *r* to each area. The focal skin distance was 50 cm., the kilovoltage 180, and the rays were filtered through 0.5 mm. of zinc and 1 mm. of aluminium. During April and the latter part of March, when only one injection was possible, weekly dosage with *x* rays was continued and the dose increased to 120 *r*.

There was no treatment between April 17 and June 27. Then followed four more weekly injections of "SSe" (4 c.cm.), with a dose of *x* rays (100 *r*) two days after each injection. No more selenium was given at any time after July 23, 1935, and no other treatment at all until October 16.

Between October 16 and December 18, 1935, sixteen applications of *x* rays were given. The whole trunk was irradiated, being divided for this purpose into six areas, and one area was treated at each sitting. The dose employed was 200 *r* at 200 kV. The focal skin distance was 50 cm. and the rays were filtered through 0.5 mm. of zinc and 1 mm. of aluminium. Throughout this last course of *x* rays, and for a fortnight afterwards, the following medicines were taken:

Dry thyroid extract 1/10 grain once daily.

Radiostoleum, 6 drops twice daily.

Mixture, twice daily:

| | |
|---|---|
| Calcium chloride ... ... ... | gr. 15 |
| Sodium iodide ... ... ... | gr. 5 |
| Sol. pectin ... ... ... ... | ʒ 2 |
| Syr. simplex ... ... ... ... | ʒ ½ |
| Aq. dest. ... ... ... | ad ʒ 1 |

### Case II

In September, 1932, a lady of middle age, with two children, had her right breast amputated for scirrhous carcinoma. In September, 1933, she had a hysterectomy for fibroids, and later I *x*-rayed her on account of severe pain and weakness in the left leg, but found no cause in the spine or pelvis. A further *x*-ray examination of the bones was made in London in January, 1934, and this was also negative. In April, 1934, there was a sudden onset of pain in the lower thoracic region, of girdle type. There was still much pain in the region of the left hip, and pain also in the neck and right shoulder and in the region of the left ischial ramus. Again an *x*-ray examination was carried out, and I found secondary carcinomatous deposits in both ilia, in the left ischial ramus, in the fifth and sixth cervical and the fourth and fifth lumbar vertebrae, and, lastly, a doubtful spot in the ninth dorsal vertebra. All movements were painful, and the patient had to be brought for examination by ambulance and stretcher.

It was decided to give high-voltage *x*-ray treatment for the relief of pain and in the hope of promoting local healing. This was carried out in May, and all the bone lesions were treated with the exception of one small spot in the right ilium. Massive doses were given, but no lesion was irradiated through more than two fields.

In June there was considerable improvement; pain was much less and her general condition better. She was able to walk a very little. In August she was a great deal better, had no pain, and was walking well. In September an *x*-ray examination showed all the bone lesions healed and well mineralized, with the exception of the small one in the right ilium which had not been irradiated.

In order to carry on the good work and if possible to complete the "cure," it was agreed that it would be well to give a course of treatment by Todd's method. The patient and her husband were willing, and treatment was accordingly begun early in September, 1934. Weekly intravenous injections of the compound colloid of selenium and sulphur were given, followed two days later by mild applications of high-voltage *x* rays. This was continued for six weeks, and then the *x* rays were stopped and a radio-active colloid was alternated with the selenium and sulphur colloid, week by week, until December 11. The veins were difficult to inject, and sometimes there was trouble with rigors and vomiting after the injections.

The patient went away in December for a month's holiday at Newquay, and on her return the alternate weekly injections were started again. Seven were given up to March 19, 1935, but she has had none since. There was continuous increase in weight from September—in one week as much as 5 lb. was gained—and on February 19, 1935, her weight was 11 st. 3½ lb., which represented a gain of about 3 st. During the treatment the patient did not have the medicines recommended by Todd. *X*-ray examination after the course showed all the old lesions still healed, and *also* the one in the right ilium.

In March, 1936, a year after cessation of treatment, a small rarefied spot was discovered in the seventh rib on the left side. This quickly cleared up after two applications of high-voltage *x* rays (200 kV), with a total dose of 800 *r*. Since then no evidence of carcinoma has been discovered. The patient has led a normal life.

### Details of Treatment

Between May 4 and May 25, 1934, six applications of *x* rays were given. All diseased areas of bone received treatment except the small one in the right ilium. On each occasion a full erythema dose was given, but no lesion was irradiated through more than two fields. The focal skin distance was 40 cm. and a current of 3 mA at 200 kV was employed.

Between September 4 and October 11, 1934, the patient had six weekly intravenous injections of colloidal selenium and sulphur. The initial dose was 2 c.cm.; all the others were 4 c.cm. *X*-ray treatment was given two days after each injection. One or two areas were irradiated each time, and received 100 *r* at 200 kV from a distance of 50 cm. All diseased areas of bone were treated. On October 16 4 c.cm. of "SSe" were injected, but no *x* rays were given afterwards.

From October 23 to December 11 alternate weekly injections of RAS (radio-active selenide) and "SSe" were given. The initial dose of RAS was 1½ c.cm., but later doses were graduated up to 5 c.cm. The dose of "SSe" remained at 4 c.cm. There was similar alternation of "SSe" and RAS between January 23 and March 19, the doses being 4 c.cm. and 5 c.cm. respectively.

After this no further treatment was given except the two doses of *x* rays on March 31 and April 1, 1936, already mentioned. Each dose was 400 *r* at 200 kV, and the focal skin distance was 45 cm. Medicines were not administered.

### Commentary

In the application of radiation for the treatment of cancer it is generally accepted that there must be two main objectives: (1) the administration, at suitable intervals of time, of sufficient *x* rays to all parts of the growth to produce a lethal effect on the cancer cells; and (2) the control of irradiation of the surrounding tissues so that their vitality shall not be destroyed or unduly depressed. It would seem, from a consideration of the two cases quoted and of others on record, that there are other factors in the re-establishment of normal conditions which do not depend entirely on a primary lethal effect on the cancer cells, and that there is room in our practice for a method of attack in which the prime object of irradiation is not the *direct* destruction of the vitality of these cells.

In neither of these cases was the radiation given in sufficient quantity to ensure such an effect, and in Case I, at any rate, the extent and distribution of the lesions and the condition of the patient prohibited heavy dosage. In Case II, although massive dosage was first employed and had a very beneficial effect on the lesions treated, it was given primarily for the relief of pain and hardly in sufficient quantity to ensure a lethal effect on the deep-seated lesions. Moreover, one small metastasis in the right ilium was not treated at all the first time, and was still present four months later when treatment with selenium and small doses of *x* rays was begun; it quickly cleared up under this. Case I was in an extremely advanced stage when treatment was begun: the patient had in fact been told before I saw her that she had probably only three or four months to live. In any event her condition was such that I should have refused to attempt any treatment by heavy *x*-ray therapy.

Todd, looking upon cancer as an infective disease, bases his method on the natural, though insufficient, resistance of the patient, and holds that his treatment acts by stimulating the patient's defensive mechanism and improving his general condition. Whether or not this is a full, or even a true, conception of what occurs, the fact remains that there have been some remarkable successes with most unpromising material. The avoidance of very heavy dosage by *x* rays or radium, with its attendant dangers and often depressing effects, is surely one great advantage of this method of treatment. Another is that it can be employed, with the possibility of some success, even in very advanced cases which ordinarily would get nothing beyond palliative and pain-relieving treatment. One obvious disadvantage is the necessity for repeated and frequent intravenous injections. These have to be well controlled and given with great care, and difficulties are apt to arise in connexion with the veins, especially when they are small. Everything considered, it would seem that the method can be looked upon as a useful addition to the means of dealing with cancer.

# Clinical Memoranda

## Recovery from Streptococcal Meningitis After Prontosil

After reading Dr. Christia F. Lucas's account (*Journal*, March 13, p. 557) of a case of streptococcal meningitis successfully treated with prontosil, I feel that the following report of a somewhat similar case may be of interest.

### Case Report

A youth aged 17 was admitted to hospital on November 6, 1936, having fallen down a lift shaft from the fourth floor to the basement. He showed clear clinical signs of a fracture of the anterior fossa of the skull—profuse bleeding from the nose and subconjunctival ecchymosis of the right eye. There were no other injuries, the pulse rate was 84, and, although there was a history of a few minutes' unconsciousness, he was already conscious, though somewhat irritable, on admission.

The patient made good progress and was regarded as practically convalescent when, on the morning of November 13, his temperature rose to 102° F. and the pulse rate fell to 68. He was drowsy and complained of pain behind the eyes. There was slight head retraction and Kernig's sign was positive. On lumbar puncture turbid fluid which was under slight pressure was withdrawn; it contained hundreds of polymorphonuclear leucocytes but no organisms. Culture was sterile, and the chloride content 650 mg. per 100 c.cm. of fluid. The next day he was quite comatose and incontinent of urine and faeces. Lumbar puncture was repeated with identical findings.

By November 20 the pulse rate had fallen to 48, feeding was practically impossible, and the patient's general condition was pitiable. A third lumbar puncture was performed, and this time streptococci were found on direct examination. An intravenous injection of 20 c.cm. of prontosil soluble was given at once and repeated in eight hours. That evening his temperature was 98° F. and pulse rate 64, and he took fluids freely. Culture confirmed the presence of a haemolytic streptococcus, and treatment was continued with prontosil album by mouth and two tablets thrice daily. There was no further rise of temperature and he improved rapidly in every way. The prontosil was stopped on November 29, by which time the patient appeared perfectly recovered; there were no signs of toxic effects from the drug. He was discharged on December 4. When he reported three months later there was no evidence of mental deterioration and he was in excellent physical condition, the sole stigma of past illness being a slight ptosis of the right eyelid.

I am indebted to Mr. Howard Stevenson, F.R.C.S., senior surgeon to the hospital, for permission to publish this case.

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# Reviews

## THE MEDICAL ANNUAL, 1937

*The Medical Annual.* Fifty-fifth year, 1937. Edited by H. Letheby Tidy, M.A., M.D., F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S. (Pp. 704; illustrated. 20s. net.) Bristol: J. Wright and Sons. London: Simpkin Marshall. 1937.

A reviewer who can find errors of fact, careless proof-reading, poor illustrations, a point of view with which he disagrees, usually has little difficulty in spinning out four or five hundred words in a notice of a book. If he finds little to criticize he may content himself with a description of what is in the book, or vigorously take sides with the author in advocating a policy or theory which they both have at heart. There is, however, little to criticize in the *Medical Annual*, so thoroughly have the editors and the publishers done their work in presenting to medical readers their ever-welcome review of medical progress during the past year. Nor is a description of the contents possible, for here is surveyed the whole field of medicine and surgery.

Among much that is of value to both the general practitioner and the specialist it is perhaps invidious to single out this or that article, but the accounts given by Dr. Macdonald Critchley of the psychology of van der Lubbe, who played such a dramatic part in the burning of the Reichstag, and of "punch-drunkenness" are of special interest. It was the fear of becoming "punch-drunk"—or "goofy," "slap-happy," "slug nutty" (to give a few synonyms, not forgetting the more elegant "traumatic encephalopathy")—that led to Gene Tunney's retirement from the ring. Also of interest is the well-written section by Mr. D. Harcourt Kitchin on "Legal Decisions and Enactments of Recent Date"; in the introduction it is stated, "Readers will undoubtedly welcome the intention of the editors that this shall be an annual article." Among the illustrations we note those of the Kettering hypertherm, of the radium bomb teletherapy apparatus, and of Chaoul contact radiotherapy—illustrations of things many readers have heard about but not seen—but we cannot see the reason for including the plate entitled "Treatment of Surgical Shock," unless it is to prove that surgeons can remain in a state of masterly inactivity.

Although the *Medical Annual* sets out to give a summary of "medical activities," it confines itself largely to clinical and scientific medicine and devotes little space to what might be called "public medicine." The editors refer to the "highest importance" of preventive medicine, the progress of which, they say, is reflected in the various articles in the *Annual*. There are, too, sections on "Food and the Public Health" and on "Industrial Diseases." Nevertheless, more space might be devoted to movements and matters directed to the betterment of the public health: a yearly review of these and of such aspects of public medicine as national health insurance (of concern to some 16,000 medical men), contributory schemes, public medical service schemes, etc., would, we believe, make the *Medical Annual* more truly a survey of medical activities.

A review of the Addendum to the *British Pharmacopoeia*, published by the Pharmacopoeia Commission of the General Medical Council, will be found immediately preceding the alphabetical lists of preparations and appliances. A new feature of the present issue is that the general index is now placed at the end of the book.

## PRACTICAL PHYSIOLOGY

*Human Physiology. A Practical Course.* By C. G. Douglas, C.M.G., *M.C.*, D.M., F.R.S., and J. G. Priestley, *M.C.*, D.M. Second edition. (Pp. 229; 32 figures. 12s. 6d. net.) London: H. Milford, Oxford University Press. 1937.

It is now some twelve years since the first edition of this work appeared. Although it was intended to give an account of the practical course in human physiology developed in Oxford, and therefore presumably used principally by students attending that course, the book contained so much that had emerged from the fundamental researches of the Oxford school that, for particular sections, teachers felt that no better descriptions could be found. Since the publication of this first edition other books with a similar object in view have become available, but there was a certain simplicity and clarity about the description of experiments and precautions of all kinds as presented in "Douglas and Priestley" which allowed it to retain a strong position for certain aspects of the subject, notably respiration, respiratory exchange, and the blood gases. In the new edition alterations have been introduced tending to increase the usefulness of the book for practical classes. The influence of Haldane is manifest in the major part of the work, and it is praise indeed to be able to say that the book is a worthy tribute to the master. By restricting the work to operations which are to be carried out on the human subject the clinical aspect is kept constantly before the mind, and there can be no doubt that the student who has followed the course prescribed will be in an excellent position to apply sound physiological reasoning to his clinical problems.

## ON THE PRACTICE OF MEDICINE

*Medical Modes and Morals.* By Harry Roberts. With chapters on Doctors and Patients in the Past by Margaret Jackson. (Pp. 255. 7s. 6d. net.) London: Michael Joseph. 1937.

Dr. Harry Roberts has here collected a symposium of reflections on the practice of medicine, based on forty years' experience of the profession. Dr. Roberts is especially fitted to write a book of this nature. In the course of thirty years of active practice in the East End of London he has been in a position to observe not only the trends and developments of modern medicine, but also the remarkable changes, both of environment and of mental outlook, which have affected the working classes during that period. The appalling conditions existing in the East End in the first years of the present century are apparent from a description of one of Dr. Roberts's earlier confinements. The patient shared her dirty bed with a three-year-old child suffering from pneumonia. On a palliasse in another corner lay the body of a one-year-old child who had died two days before from the same disease, while the unfortunate mother admonished another child of 5, playing in the room, to refrain from fingering the corpse. Hundreds of similar confinements were attended with the co-operation of "the direct descendants of Mrs. Gamp." Nevertheless it is surprising to read that the proportion of maternal deaths was negligible, while puerperal sickness was not at all frequent. Cultural handicaps were even greater than the material. The street corner and the public house were the only alternatives to the overcrowded single room. Although the overcrowding still persists, the advent of the cinema, the dance hall, and the wireless has provided a wider and happier outlook. The inferiority feeling, from which the working-classes suffered through force of circumstances,

has now disappeared. This is especially noticeable among the younger women, who, in Dr. Roberts's opinion, compare very favourably with their more fortunate sisters in the West End.

The author contrasts the revolutionary improvement in surgical practice since the advent of asepsis, from the point of view of safety, with the lamentable morbidity and mortality rates still persisting in midwifery. Why has asepsis failed to show a beneficent influence on obstetrics? Dr. Roberts attributes this to the lack of obstetric skill in emergencies on the part of the modern practitioner, due simply to the fact that, under present conditions, he has not the opportunity of gaining the necessary experience. Until wholesale hospital midwifery becomes a matter of practical politics Dr. Roberts suggests a revival of the better features of the old apprenticeship system as a means of providing the mass of general practitioners with the requisite obstetric skill. The author states his views on many other professional questions. They are valuable in that they are deduced from the personal observation and experience of a man of unusually broad outlook, uninfluenced by textbook teaching or the therapeutic vogues of the moment.

The last fifty pages of the book are devoted to chapters on "Doctors and Patients in the Past" by Dr. Margaret Jackson, giving a concise historical survey of the profession from prehistoric times—a series of admirable vignettes.

## CUNNINGHAM'S ANATOMY

*Cunningham's Textbook of Anatomy*. Edited by J. C. Brash, M.A., M.D., F.R.C.S.Ed., and E. B. Jamieson, M.D. Seventh edition. (Pp. 1,506; 1,171 figures (653 in colour); 76 plates. 42s. net.) London: H. Milford, Oxford University Press. 1937.

The seventh edition of Cunningham's classical *Textbook of Anatomy* has been brought out under the able superintendence of Professor J. C. Brash and Dr. E. B. Jamieson, and maintains the lucid character which was impressed on it by its first editor and has been continued for nearly twenty-five years by Professor Arthur Robinson, who, though still taking an active interest, has now retired from the editorship. We are glad to have this opportunity of expressing our appreciation of the high standard of his work and also that of Professor J. T. Wilson, who likewise has retired. Two distinguished members of the editorial staff, Professor Francis Dixon of the University of Dublin, and Sir Grafton Elliot Smith of University College, London, have died; their names will live on for many years in the memory of British anatomists. Among the new contributors are Professor A. B. Appleton (ductless glands) and Professor R. D. Lockhart (myology). Illustrations have been added in all sections of the book, and special attention may be drawn to the excellent drawings by R. W. Matthews and A. K. Maxwell; and also to the photographic illustrations and the radiographs, which give additional interest to a publication that has always held a high place in the artistic representation of anatomy. Space will not allow mention of all those who have contributed new photographs and radiographs, but we feel that Professor Lockhart's deserve special recognition not only for their originality but for the fresh light they shed on the problems of movement in the living subject as contrasted with the fixed anatomy of the dead. An important change is the adoption of the nomenclature approved by the Anatomical Society of Great Britain and Ireland at the Birmingham meeting in 1933.

By way of constructive criticism of an admirable book we should like to see inserted in the appropriate places some clear-cut illustrations of the microscopical structure of those organs and tissues which are important from the practical standpoint. For instance: sections of human embryos showing typical stages of organogeny; blood, lymph corpuscles, and red marrow; the development of bone; the various types of muscle; the tonsil; the fully developed thymus; lung tissue; the pancreas, including islets of Langerhans; the testis, showing tubules and interstitial cells; a corpus luteum of pregnancy; the uterine mucosa and decidua; the mammary gland in the resting and active conditions; typical areas of the cerebral cortex, such as the motor, hippocampal, and visual, with a short description of the evolution of the cortex. In our opinion such drawings made from actual specimens are much more satisfactory than diagrams of an artificial nature, which though perhaps more simple may be misleading. For example, Fig. 89 purports to represent the separation of the placenta, but shows a mode of detachment that, if it were true, would be dangerous, and might lead to fatal haemorrhage. The book as a whole is, however, a masterly exposition of what a medical student or practitioner would wish to possess as a textbook of human anatomy or for reference.

## HISTORY OF THE ZYMOTICS

*The History of the Acute Exanthemata. The FitzPatrick Lectures for 1935 and 1936*. By J. D. Rolleston, M.A., M.D., F.R.C.P., F.S.A. (Pp. 114. 7s. 6d. net.) London: W. Heinemann. 1937.

Modern statistical logicians have less faith in the rule of succession than did Laplace, and certainly authors who have written many good books may write bad ones. But it will be a reasonable exercise of faith to hold that any book bearing the honoured name of Rolleston is valuable. Dr. J. D. Rolleston's FitzPatrick Lectures confirm that faith. Scholarship and clinical experience are a rarer combination than in the past; Dr. Rolleston has the good fortune to illustrate the value of historical learning to the clinician and medical experience to the scholar. In this short, perhaps too short, volume he records the vicissitudes of small-pox, chicken-pox, scarlet fever, measles and German measles, and of medical opinion respecting these illnesses.

Dr. Rolleston writes with judicial impartiality. On the once-exciting controversy as to whether small-pox was known to the physicians of classical antiquity he contents himself with summarizing the arguments. Perhaps his summary of Haeser's view is a trifle too condensed. The reader might suppose that Haeser put much weight upon the fact that many early medical writings which *might* have contained unequivocal accounts of small-pox were lost. To us Haeser's main argument appears to have been this. That some clinical descriptions by Galen and others could, without too much ingenuity, be taken to apply to cases of small-pox, and that the admitted rarity of well-described epidemics might partly depend upon the loss of writings, but also upon a genuine infrequency of epidemics in the West earlier than the sixth century.

Dr. Rolleston's chapter on chicken-pox enables us to get the history into true perspective. Many of us have supposed that the elder Heberden was the first physician to recognize the essential difference between small-pox and chicken-pox. Dr. Rolleston, while giving due credit to Heberden, points out that he had predecessors, and that after his time competent physicians again confused the issue—no uncommon event in the history of the zymotics. The history of scarlet fever is so dramatic that it is good copy for any historian. Dr. Rolleston naturally tells the story well. It is interesting to learn that the

acute Fuller did not believe scarlet fever to be contagious. In his chapter on measles Dr. Rolleston describes Home's pioneer experiments in inoculation. He notices that, in spite of Sydenham, measles and scarlet fever were confused almost to the end of the eighteenth century. He includes an account of the not too well known modern instance of virulent measles in a population without experience of the disease. The case of the Highland Division quartered in Bedford in 1914–15 is of interest. There were 529 cases with sixty-five deaths, mostly due to septic bronchopneumonia. The disease was most severe among men from the remote Highlands. The final chapter deals with German measles, the general recognition of which dates from 1881. All modern writers with extensive experience are unanimous as to the almost invariably mild course of this disease.

This clearly written book is worthy of its author and of the series in which it appears.

## Notes on Books

As a practised writer of crime thrillers Mr. ANTHONY WEYMOUTH realizes the importance of arresting the reader's attention from the outset. In the first eight pages of his autobiography, *Who'd Be a Doctor?* (Rich and Cowan, 8s. 6d.), which reveals the author as a West End practitioner, a woman patient commits suicide by throwing herself from the third-floor window of a nursing home, and three spectators of the Derby are struck by lightning, one fatally; before the end of the chapter a woman swallows the large blade of a penknife. The book then settles down to chronological order, with an excellent description of student life at St. Thomas's at the beginning of the century. A provincial house appointment follows, enlivened by the periodical arrival at the hospital of a four-wheeler bearing a case of delirium tremens. The author showed his wisdom by viewing practice from every angle through a variety of locumtenencies, described with considerable humour, before setting up in London. Here he rapidly established a successful practice, which became still more lucrative as circumstances and inclination induced him to specialize in neurasthenia. The book is full of amusing anecdotes, both of patients and of doctors, and there are many wise observations on diagnosis and treatment. "Mr. Weymouth" writes with a pleasing modesty, and shows that he possesses a broad and philosophical outlook on medicine and on life in general. The author's frequent references to his happy family circle are attractive (and unusual) features of this very readable book.

A new edition of *Nursing Homes* (Benn Brothers, 4s.) has made its appearance. The number of pages this year extends to 280, and the information it contains, arranged under counties, has been obtained either from the nursing homes direct or from responsible official sources. This volume continues to meet a definite need, since it is the only yearbook of its kind covering Great Britain

*Période de Fécondité et Périodes de Stérilité Chez la Femme*, by H. VIGNES and M. ROBEY (Masson et Cie, 14 fr.) has as its main theme the safe period, postulated by Ogino and Knaus. Experimental work suggests that ovulation occurs within a set and limited period of the menstrual cycle, and that human spermatozoa can only live for a short time in the female genital passages, and, therefore, that a woman can only conceive during at most one week out of every month. Clinical evidence, on the other hand, would appear to offer irrefutable evidence that conception may take place on any and every day of the menstrual cycle. Dr. Vignes and Robey, both clinicians, are fully conversant with the scientific literature, and are at the same time able to evaluate the vast amount of relevant clinical data which has accumulated. They conclude that the period of fertility is very circumscribed in the great majority of women, but that in some 20 per cent. there is no safe period. We know of no better or more concise exposition of this vexed question.

The third edition of *The Preparation of Scientific and Technical Papers* has been produced by SAM F. TRELEASE and EMMA SAREPTA YULE (Ballière, Tindall and Cox, 7s.). This manual has been designed to help those who have to write university theses, and should enable them to present their material in the most effective form. Though primarily intended for students, the handbook should prove of value to medical men in the preparation of technical articles. Much of the material submitted to scientific journals is badly arranged, this defect often spoiling otherwise good work and thus lessening its chances of acceptance. The information contained in the handbook, properly applied, should assist in the production of a well-balanced paper, and the result thus be less likely to prove a source of tribulation to a busy editorial staff.

Mr. GEORGE RYLEY SCOTT'S work on *The Sex Life of Man and Woman* (Werner Laurie, 10s.) claims to be an introduction to the sexual problem not only for the lay public but also for the medical profession, of which he is not a member. The book deals in a popular manner with the anatomy and physiology of the sexual organs, masturbation, venereal disease, impotence, sterility, and birth control. We have noticed a number of verbal errors, such as labias (pp. 19 and 21), sine immissio (pp. 184, 302, and 311), haemophylic (pp. 201 and 304), and pruritis (pp. 279 and 316).

## Preparations and Appliances

### MOBILE LIGHT TREATMENT UNIT FOR WARD WORK

An advance in actinotherapy equipment is the introduction by Hanovia Ltd. of Slough of a ward model lamp for light treatment, an easily transportable unit which can be brought to the patient's bedside. The arc lamp with its reflector and hood and the electrical controls are mounted on a small trolley which runs smoothly on ball-bearing rubber-tyred castors, and is so compact and mobile that it can be taken along any corridor, through any doorway, and into any lift or small room. The ultra-violet rays are generated by a mercury arc operating in a U-shaped tube of transparent quartz. A parabolic adjustable reflector will in one position diffuse the actinic rays for general treatment and in another concentrate the beam for focal or regional irradiation with threefold intensity. By means of an extension arm and fork bracket the lamp can be swung right over the cot and be operated in any desired position without moving the patient. The unit has the further advantage that it can be connected to any light socket or pendant by means of a universal plug. A timing clock is provided which marks any treatment interval up to thirty minutes and gives a ringing signal when irradiation is finished. From three to five patients an hour can be treated. The great value of the unit is that it makes possible the administration of light treatment at an earlier stage in recovery after operation or other illness. As matters have stood, the time for light treatment has often been dictated, not by the patient's need for it, but by his ability to go or be taken to the light department. There should be a wide field of application for this new design. The model can be inspected at the firm's London showrooms, 3, Victoria Street, S.W.1.

### WHOOPING-COUGH VACCINE

Wellcome brand whooping-cough vaccine (Burroughs Wellcome and Co.) is put out by the makers with certain reservations. They point out that there is at present no satisfactory laboratory test for potency. They quote clinical reports favourable to the value of this vaccine as a prophylactic agent, but conclude that so far there is no general agreement as to the efficacy of the vaccine in the treatment of whooping-cough. There will, however, be general agreement with their conclusion that the disease is such a nuisance, and is often so serious, that any promising prophylactic measure is worthy of trial.

# RURAL HEALTH IN THE SOUTHERN STATES

In the beginning of the seventeenth century certain English people crossed the North Atlantic under the aegis of a corporation known as the London Company. Settling first at Jamestown in Virginia, they spread from there towards the west over territory which now forms part of the Southern States of the Union. These planters, as they came to be called, had left home in order to advance their fortunes and not out of any grievance against their native land, and the methods of government which they adopted in their new surroundings were those of the England of their day, where the county and not the town was the recognized administrative unit. A little later in the same century, when the Plymouth Company received its privileges, other English settlers of a different temper took ship to Massachusetts, and moved westward also. These colonizers of the northern belt had broken away from the Church of England. Being independents, they thought in terms of separate congregations and tended to cluster round their churches. For these reasons, and also because they had no inclination to copy English ways, administration developed in their hands on an urban and not a county basis.

This difference between the northern and southern belts has shown a strong tendency to persistence, with the result that at the present time county government as understood in America is still exemplified most typically in the south and not the north. Administrative life in many southern counties is one of primaeval simplicity. The official stands very close to his people. No difference of status lends distance or enchantment to his position, and the average citizen feels entirely at liberty to call him in question personally at every turn. A medical officer assuming duty in one of these young communities, when in seeking to organize health movements he finds his progress barred by unreason, may well wish for guidance not only on the professional aspects of the position but also in the more difficult art of managing his fellow creatures.

### Guidance by Experience

Guidance for the rural medical officer under such conditions is furnished in a recent work by Professor Harry S. Mustard of the Johns Hopkins University,[1] who, having himself had experience of rural health practice, modestly claims to have made "most of the mistakes which it is possible for a rural health officer to make." He writes against the background of his own southern experience, which adds weight and value to what he has to say. Keeping in mind the fact that the rural medical officer is to a large extent cut off from recourse to libraries, he details in a tactful manner some of the clinical tests now current in public health work. He "reminds" his reader how to carry out the Schick test, how to make the Mantoux test, which he considers the method of choice among tuberculin tests, and how to enter the spinal canal. He discusses the question of suitable quarters to house the medical officer and his department, whether at the County Buildings, or over a store in the main street, or in a residential block. In the matter of records and reports he is minutely, and even paternally, helpful. He devotes close on a page to the "family folder," which is a folded card destined to contain the health records of the members of a family, pointing out that "if the fold breaks through it is better in the long run to use a new folder than to provide a new hinge of adhesive plaster. Data noted in the old folder should of course be entered in the new." Turning next to the tabulation of statistical material, he warns his reader against the blunder of trying to convey too much in a graph. He expresses dislike, which many will share, for complicated diagrams designed to reveal the interrelations of sections of a health department, which by means of their "suspended circles, hanging triangles, and converging lines" obscure a situation which, simply stated, would have been plain enough.

His article on statistical procedures is admirable in its conciseness and lucidity. Beginning with the centring constants he passes on to probability calculations, and finishes up with the Chi-square test, remaining throughout within the understanding of the intelligent non-mathematical reader.

Apart from the reasoned sequence of Professor Mustard's work his more general observations upon the world of health as he has found it are lively and instructive. We cite a few. "It is seldom that rural health departments are developed solely through local interest." "Public meetings are not to be entered into without some previous preparation and stage setting." "To inform some men that the maternal mortality rate is 7.5 maternal deaths per 1,000 live births causes them only to wonder how one-half a woman might die." "A low standard of work by a health officer should be sufficient for his removal from office." "The dollar equivalent method of appraisal of health department service is a poor procedure." "The following up of the nurse on the individual child is one of the least productive things in the school health programme." "Midwives in the United States are all much alike, except that some are worse than others." "The pasteurization of clean milk is the sheet anchor in milk sanitation."

Through the whole of Professor Mustard's writing runs a strong vein of common sense, which is, after all, to borrow his own expression, the "sheet anchor" of public health administration, whether rural or urban.

[1] *Rural Health Practice.* By Harry S. Mustard, M.D. New York: The Commonwealth Fund; London: H. Milford, Oxford University Press. 17s.

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W. F. Wenner and J. H. Alexander (*Arch. Otolaryng.*, Chicago, December, 1936, p. 742) find that changes in the nasal mucosa following zinc ionization do not hinder the absorption of vasomotor drugs instilled into the nasal cavity. The changes after zinc ionization consist of coagulative necrosis and desquamation of the surface epithelium. The surface then becomes covered with stratified epithelium, and this gives rise again to normal ciliated columnar epithelium within two to three months. The turgescence of the mucous membrane and the rhinorrhoea in allergic rhinitis clear up after intranasal ionization. There are two ways in which one can explain the relief of symptoms: (1) Changes in the epithelial lining have affected the rate of absorption of substances introduced into the nose. (2) Disturbances of the nervous vasomotor mechanism have been brought about by the process of ionization. Any agent that would interfere with the vasodilator nerves would produce symptomatic relief without necessarily altering the state of sensitivity. The authors experimented on cats in order to put these views to a test. Under anaesthesia the left side of the nose was filled with zinc sulphate solution and a current was allowed to flow for twenty minutes. In another group of cats a physiological salt solution was used instead of the zinc sulphate and a current passed in the same way. At intervals varying from one week to three months the animals were again anaesthetized, and tracheal and carotid cannulae were inserted for recording respiration and blood pressure. The choanae were then blocked with post-nasal plugs and various vasoconstricting and vasodilating agents were instilled into either the right or the left nostril. Histological preparations of the nasal mucosa show that the blood vessels and cavernous tissue fail to react to vasoconstrictor and vasodilator substances for six weeks after zinc ionization and for four weeks after treatment with the galvanic current alone. This failure of the vascular structures to constrict or to dilate is due either to a temporary paralysis of the vasomotor nerves or to a loss of vascular tone.

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## THE CORONATION

When these words appear in print on Friday there can be little left to say about the Coronation. The newspapers and the radio stations are working overtime, and full details of the great ceremony of Wednesday, May 12, will be known to our readers in every part of the world. One backward glance, to an earlier Coronation, may therefore suffice.

In the early summer of 1838—when the British Medical Association was six years old and bore a longer name and its *Journal* had not yet come to birth—Queen Victoria drove to Westminster Abbey to be crowned. "It was a fine day, and the crowds of people exceeded what I have ever seen. . . . Their good humour and excessive loyalty was beyond everything, and I really cannot say *how* proud I feel to be the Queen of *such* a Nation. . . . The enthusiasm, affection and loyalty were really touching, and I shall remember this day as the *Proudest* of my life! . . . It was a memorable and glorious day for me. . . . I likewise venture to add that people thought I did my part very well." So wrote the young Queen of England ninety-nine years ago. And history, we hope, will have repeated itself in all these particulars for her great-grandson on May 12, 1937. Our weather is capricious, but the affection and respect that supported Victoria from the day she came to the throne to the end of her long life can be counted upon by George VI. The ceremonies still follow the ancient ritual, but the plans and preparations this year have been more elaborate than for any earlier Coronation, even that of 1911, and the strain on those responsible is proportionately heavier.

Without further ado we offer congratulations to our King and Queen at this time of national rejoicing, and wish them many years of happiness and good work, in the name of the 36,000 medical men and women who make up the British Medical Association to-day. King George VI, like his grandfather, his father, and his eldest brother before him, has honoured the Association by becoming its Patron. The members, scattered throughout the British Empire and beyond, join with their fellow subjects in a loyal toast to His Majesty.

## VOLUNTARY HOSPITALS

The Voluntary Hospitals Commission set up by the British Hospitals Association, which began to collect evidence some sixteen months ago, has now issued its report,[1] and an account of the report was given in last week's *Journal* at page 984. It is a useful document which deserves, and will no doubt receive, careful consideration by all those interested in the work of the voluntary hospitals. If the members of the Commission can scarcely be regarded as thoroughly representative, they constitute a team competent to give, within their terms of reference, a valuable judgement on the matters remitted to them from the aspects of medicine, nursing, the law, administration, and finance and accountancy. The report is signed by all the members without reservations, so that the opinions it expresses and the advice it tenders should be regarded as having much weight and some authority. It does not profess to cover the whole field of hospital problems; it touches only lightly on the relation of voluntary to council hospitals; and while there will be readers who may think that some matters discussed might well have been left for the consideration of the Central Hospital Council, whose formation is one of the chief recommendations, there will be others who may wish that certain of the questions raised had been carried to a more complete conclusion even before their consideration by such a council. For the painstaking sifting of a large volume of evidence, and the orderly presentation of conclusions, the Commission deserves thanks.

The report sets out quite definitely the opinion that the continuance of the voluntary hospitals is highly desirable, but that this continuance of their existence will be precarious in the absence of co-operation and organization by them in the field which they cover. These are blessed words, but they do stand for important actualities. Though the annual revenue of the voluntary hospitals, taking them all together, at present considerably exceeds their annual expenditure, the former is uncertain and the latter is bound to increase; and there can be little doubt that, unless as a whole these institutions show themselves willing to abandon much of the isolation and individualism to which they have clung obstinately for so long, all but a very few which are specially favoured or endowed will find it very difficult or even impossible to survive for many years. The course not only recommended but regarded as essential is a voluntary grading and grouping and regionaliza-

[1] London: The British Hospitals Association, 12, Grosvenor Crescent, S.W.1. (1s., post free 1s. 2d.)

tion for a large variety of purposes. The grading into central, district, cottage, and auxiliary hospitals, defined in the report in a manner now generally understood; the grouping of a considerable number of hospitals of these several grades round one large hospital fully equipped and staffed for almost all kinds of medical and surgical work; the recognition of the area which such a group of hospitals serves as largely a self-contained region which their activities would cover in common, from which in great part they would derive their revenue, and to which in the main they would direct their appeals for support—these things are urged very strongly upon the numerous boards of management. For each such region, and representative of all the hospitals within it, there should be a regional council which would by no means supersede the individual governing bodies, but would enable them collectively to give a more efficient service, to effect considerable economies, and to avoid overlapping appeals for funds and unnecessary or ill-placed future hospital provision. The report sets out with some fullness the organization and duties of such a council, but does not touch on two relevant matters of great importance.

What is to be the relation of these organized groups and councils to the hospital work of the Local Government authorities? On what principles are the regions themselves to be mapped out? The absence of more definite guidance as to the best answers to these necessary questions leaves the report relatively unhelpful, but one can understand it. The Commission was appointed by a voluntary body and its reference was to voluntary hospitals only. The volume of work within this reference was already large; and the Commission had therefore neither the time nor the authority to go much further than it has gone into the statutory powers or duties of local authorities, or to suggest in more than very general terms the desirability of co-operation between the two sets of hospitals and of representation of the local authorities upon the regional councils which the voluntary hospitals might form. Again, the actual mapping out of the country into definite hospital regions could scarcely have been expected, but the Commission might perhaps have gone more fully into the questions immediately arising with regard thereto. Almost all that is said is that the regions "should be built up in accordance with the position, rank, and size of hospitals and should have regard, as far as possible, to the areas of local authorities with which they will co-operate." That is poor material for any adequate discussion of this very important matter. The British Hospitals Association has at present a regional organization, and there are several schemes of group hospital work now operating, but these are all admittedly imperfect or experimental. It is possibly wise of the Commission merely to indicate the way in which this question might be further explored, but a fuller discussion in the report would have been welcome. The success of the whole plan will depend upon the care and tact with which individual hospitals are approached, and, in the long run, on the degree to which the organized regions can be made either directly or, by ingenious arrangements within the organization, to correspond with Local Government areas or with combinations of such areas.

The formation of a Central Hospital Council co-ordinating the work of the several regional councils is a corollary. This is recommended, and an indication, sufficient for the moment, is given of its nature and duties. We are glad to note that on other matters of importance the Commission is in general agreement with the policy advocated by the British Medical Association. Among these may be mentioned the "open staff" for cottage hospitals, the provision of pay-beds and the access thereto of medical practitioners other than the staff of the hospital to which they are attached, the restricted use of out-patient departments, the principle of the payment of visiting medical staffs, an income limit for members of contributory schemes, and the organization of such schemes on an insurance rather than on a charitable basis. It is true that in some of these matters with which the medical profession is specially concerned the Commission sees difficulties in their immediate and universal application; but so does the British Medical Association. Yet it is a distinct advance towards the accomplishment of the Association's policy that in principle, and to a great extent in detail too, this policy should thus have received the endorsement of an impartial and independent authority.

## CONGRESSES OF OBSTETRICS AND GYNAECOLOGY

It is scarcely a hundred years since obstetrics and gynaecology began to develop into a separate and distinct branch of medicine. In recent times the field of obstetrics has become enlarged, and to-day it is recognized that eugenics, sociology, and even the survival of the race are problems which are closely related to, and deserve the careful consideration of those engaged in, obstetrics. The American Committee on Maternal Welfare has been instructed to explore the possibilities of convening a national congress in the United States, representing not only obstetricians and gynaecologists but general practitioners, nurses, and others interested in the social sciences and services, to consider those problems which are related to the welfare of women.

Holland has arranged for the first International Congress in Obstetrics and Gynaecology to be held since 1912 to take place in Amsterdam next year. Obstetrics and gynaecology are vitally concerned with "race" in its widest aspects, and race is now more than ever an important factor in international relations. It is therefore probable that the American National Congress mooted for 1939 will, so far from detracting from the success of that to be held at Amsterdam, actually serve to stimulate the nations to resort more frequently to international conferences devoted to the study of woman.

## THE IDE TEST

There are many complement-fixation and flocculation tests employed in the diagnosis and management of syphilis, but they are not yet perfect, and therefore any new procedure which combines simplicity and ease of performance with a high degree of specificity and of sensitivity deserves attention and trial; such a one is the Ide test.[1] It is claimed that this test can be carried out in a few minutes with one drop of blood, and in a consulting-room, and the results compare favourably with such reactions as the Wassermann, Meinicke, Kahn, and others; moreover, it is equally applicable to blood, serum, cerebro-spinal fluid, or serum exudate obtained from a blister. One drop of blood, or serum, or cerebro-spinal fluid, etc., is mixed with saline on a hollow glass slide and the appropriate antigen is added. The slide is then shaken for four to five minutes and the result read under the low-power objective of a microscope or with a powerful lens. Positive reactions show purplish-blue coloured clumps, while in a negative reaction there is no sign of clumping. The preparation of the antigen is somewhat laborious, but once it is made and standardized there is no further difficulty. Briefly, ox-heart is extracted with alcohol, and then to the extract are added measured amounts of cholesterin, gum benzoin, and dyes (crystal violet and azure II). In a comparison made by the authors with the Wassermann reaction on 1,262 sera the results were in very close agreement. The Wassermann reaction gave 119 strongly positive reactions, 10 "one plus," 7 "plus minus," and 1,126 negative reactions, as compared with Ide 116, 3, 3, and 1,140 respectively. It is not stated what technique was employed in the Wassermann reaction with which the comparison was carried out; inasmuch as the Wassermann tests are generally rather less sensitive than the best flocculation tests the fact that the Ide test gave rather fewer positives than the Wassermann suggests that it is not a highly sensitive test. On the other hand, since apparently no false positives were recorded it would appear to be remarkably specific; exactly how it compares in sensitivity with the better flocculation tests, such as the Kahn, Kline, or Müller-Ballungs, we are not told. The Ide test is really little more than a modification of the Kline, with the difference that colouring matter and gum benzoin are added to the antigen in order that the "clumping" may be seen more clearly. Even this idea is not altogether new, since Laughlen[1] has described a similar technique, using scarlet-red as his dye; his test has been reported on very favourably in America.[2] This account of the Ide test raises the question whether any "consulting-room" test is or ever can be applicable to the diagnosis, control of treatment, and test of cure of syphilis. Even the simplest of tests have their pitfalls, not only in the setting up of the reaction but in the reading and interpretation of results; moreover, serum tests for syphilis should be done in batches rather than singly, for in this way a better control can be exercised and any faulty reagent is more likely to be recognized. It is very doubtful if the time has yet come when such investigations can be taken out of the hands of the skilled pathologist and carried out by the clinician in his consulting room; the danger of the false positive and all that it may bring in its train is too real; the pathologist has controls, whereas these may not always be available to the clinician. If the Ide test were shown to be very highly sensitive a negative reaction might be useful for excluding syphilis—like the "presumptive" Kahn or "exclusion" Kline—both in cases with lesions suspicious of contagious syphilis and for testing blood donors, and on other occasions when time is of importance; but it will need much more testing out before it can be accepted as foolproof and suitable for the "consulting room." In the meantime no doubt the simplicity of the test will appeal to many, and certainly it seems worthy of an extended trial in this country, where as yet it appears to be almost unknown.

[1] *J. Lab. clin. Med.*, St. Louis, 1936, **21**, 1190.

## TRANSIENT VENTRICULAR FIBRILLATION

Ventricular fibrillation has rarely been described because its presence is incompatible with a functioning left ventricle. There is reason to think that it is the cause of an unexpectedly fatal result in patients with Graves's disease, myocardial degeneration, and possibly pneumonia. It is therefore of interest that clinical and graphic manifestations of the spontaneous revival of the heart from ventricular fibrillation have been recorded by Sidney P. Schwartz[3] in seven cases. Seven patients were suffering from transient or established auriculo-ventricular block, and the attacks of ventricular fibrillation were apparently incidental. It appears that the following was what happened. The ventricular fibrillation was immediately succeeded by a brief post-fibrillary pause, during which the ventricles were at a standstill. During this pause the auricles generally continued to beat, but at a slowed rate. After a variable period a regular idio-ventricular rhythm started and increased in rate up to a maximum in some cases of about 160 a minute. Following this ventricular tachycardia, which was quite distinct from the ventricular fibrillation, the previously existing normal idio-ventricular rhythm was resumed at a rate of between 30 and 40. This sequence of events was fairly constant in all the patients who recovered from the attacks of ventricular fibrillation, and lasted from a few seconds up to half an hour, according to the duration of the

[1] *Canad. med. Ass. J.*, 1935, **33**, 179
[2] *J. Amer. med. Ass.*, 1936, **108**, 1170.
[3] *Amer. J. med. Sci.*, 1936, **192**, 808.

fibrillation The clinical picture seemed definite enough to make it possible to suspect the presence of a previous attack of ventricular fibrillation. After the ventricular fibrillation had stopped and the idio-ventricular tachycardia had started, the skin flushed, the heart beat forcefully and regularly, but the pulse at the wrist remained small. The patient recovered consciousness, screamed, spoke incoherently, and was completely disorientated to his surroundings. On the resumption of the previous normal basic rate of 30 to 40, coma and unconsciousness might appear and last up to five hours. During the period of ventricular fibrillation the breathing ceased, but on the resumption of the ventricular tachycardia, and afterwards, it became irregular and sometimes of a Cheyne–Stokes character. Complete electrocardiographic studies are given, and it appears that the observations are of definite value in the diagnosis of attacks of ventricular fibrillation in such patients. From the point of view of treatment there is little to add, for the obvious drug, quinidine, which might inhibit or cut short the period of ventricular tachycardia, is very dangerous in cases of complete heart block, as it has been shown to have a paralysing effect on the idio-ventricular node, with a fatal result.

## RESEARCH IN FOOT-AND-MOUTH DISEASE

A committee including distinguished veterinary and medical members was appointed by the Ministry of Agriculture in 1924 "to direct and conduct investigations into foot-and-mouth disease, either in this country or elsewhere, with a view of discovering means whereby the invasions of the disease may be rendered less harmful to agriculture." The fifth progress report of this committee[1] has just been issued and provides a record of continuous valuable work. Difficulties encountered in dealing with a disease of this character are great, but the increasing mass of information acquired through the activities of the committee helps to keep outbreaks of the disease under control. The chief centre of research is the experimental station at Pirbright, Surrey, but work has also been carried out at the National Institute of Medical Research, the Lister Institute of Preventive Medicine, Manchester University, and the Oxford Bureau of Animal Population. The body of information accumulated covers the following more important factors. Washing soda or diluted caustic soda have been established as the most suitable and efficacious disinfectants. The size of the virus and its resistance to physical and chemical changes have been fully investigated. It has been shown that the particles are smaller than those of practically any other known virus, the diameter being estimated to be about one-hundred-thousandth part of a millimetre. Certain materials alleged to possess curative or preventive properties have been exhaustively tested, so far without discovering anything of real value. The committee's researches into immunity have shown that the resistance induced by an attack of the disease is very solid and far more durable than was formerly believed. This fact encourages the hope that an effective method of artificial immunization may not be out of reach. But this work on immunity is made difficult because several types of virus are now known to exist, each one of which can "break down" an immunity established against any of the others. The severity of attacks of all types is modified by such factors as age, sex, state of nutrition, and climatic conditions. Due attention has been paid to possible means of transmission of the disease by other animals in the field and experimentally. In particular, rats, mice, rabbits, moles, voles, ferrets, and various species of birds have been carefully tested. The recent discovery of the great susceptibility of the hedgehog is noted as a matter of special interest. It has provided an experimental animal which may prove of great value, for the disease is conveyed by contact between one hedgehog and another in the same way as with ordinary farm stock. The committee feels hopeful that its future researches will be much facilitated by this new knowledge.

[1] H.M. Stationery Office. (7s.)

## A NEW SPECIES OF RICKETTSIA

Among the numerous forms of typhus fever now recognized there is one named *fièvre boutonneuse*, observed along the Mediterranean littoral, which appears to be due to a species of *Rickettsia* called *R. conori*. Man is infected with this organism through the bite of a dog-tick, *Rhipicephalus sanguineus*. Observations have shown that as many as 30 to 40 per cent. of dogs in the area where the disease is prevalent may carry a latent infection. Two years ago Donatien and Lestoquard,[1] working in Algeria, found that dogs exposed in the open fields became heavily infested by ticks of the species *Rhipicephalus sanguineus*, developed fever and anaemia, and died in one to two weeks. Examination of their blood revealed the presence of rickettsial bodies confined strictly to the interior of wandering monocytes of medium size. They occurred in the form of groups containing from four to six up to several dozen individual particles. This organism, which the authors named *R. canis*, is the subject of a fresh communication.[2] Experimental inoculations have shown that *R. canis*, in contradistinction to *R. conori*, gives rise to a febrile reaction in the dog with the appearance of considerable numbers of histiocytes in the peripheral blood. Rickettsia are found in the histiocytes but never in the endothelial lining of the blood vessels or serous membranes. The monkey, *Macacus inuus*, on the other hand, reacts strongly to *R. conori* and may even die, but is hardly affected at all by *R. canis*. Similarly, the guinea-pig, which is very sensitive to intradermal or intraperitoneal inoculation with *R. conori*, shows no disturbance whatever after inoculation with *R. canis*. These differences between the two organisms are borne out by the results of cross-immunity experiments. It is therefore concluded that though *R. conori* and *R. canis* both infect dogs and are both carried by the same tick they belong to different species. Preliminary observations suggest that *R. canis* is not confined to Algeria, but occurs as well in the South of France.

[1] *Bull. Soc. Path. exot.*, 1935, **28**, 418.
[2] Ibid., 1936, **29**, 1052.

## CORONATION HONOURS

The medical names included in the Coronation Honours List of May 11 will be found set out at p. 1041. Dr. Christopher Addison's peerage strengthens the representation of the Labour Party in the House of Lords and rounds off a long career of service to the State. It is more than twenty-five years since Dr. Addison gave up the teaching of anatomy for the hurly-burly of politics. He parted company with medicine after the National Insurance Bill crisis, throughout which he had been a prominent figure in and out of Parliament, but renewed his contacts again for a short time while holding office as the first Minister of Health on the amalgamation of the Local Government Board with the Insurance Commission. Sir Cuthbert Wallace's baronetcy will give great pleasure to the members of our profession; his unselfish work for St. Thomas's Medical School, for the Royal College of Surgeons of England, of which he is now President, and for Mount Vernon Hospital is known far and wide. The name of George Still has been a household word in paediatrics for so long that no title can add to its fame, but Dr. Still's innumerable admirers and disciples will rejoice in the honour, that of K.C.V.O., which comes to him this week from the King. Dr. Arthur Hurst has done fine work for clinical medicine, and his knighthood confers one more distinction on Guy's Hospital. Professor Edward Mellanby's K.C.B. recognizes outstanding service to medical science and the cause of research. Obstetrics and the Birmingham Medical School are alike honoured by the knighthood for Professor Harold Beckwith Whitehouse. Air Vice-Marshal Alfred William Iredell's K.B.E. will be acclaimed by the R.A.F. Medical Service, of which he is the head, and the work of Dr. John Richards Harris as Minister of Public Health for the State of Victoria has earned him the same honour. Sir John Atkins receives the further distinction of K.C.V.O., and a knighthood is bestowed on Dr. Arthur Edwin Horn, medical adviser to the Colonial Office. Many other well-deserved awards appear in the medical list, but this note must not end without congratulations to Dr. J. P. Major on his C.B.E., because the success of the annual meeting of the British Medical Association at Melbourne in 1935 was largely due to his enthusiasm as Honorary Local General Secretary. Three non-medical honours should be mentioned here: the knighthood for Mr. S. P. Vivian, Registrar General; D.B.E. for Mrs. Finsent, late Senior Commissioner, Board of Control; and the O.B.E. for Mr. H. N. Linstead, secretary of the Pharmaceutical Society.

## CONTRALATERAL ARTIFICIAL PNEUMOTHORAX

Many explanations of the beneficial action of artificial pneumothorax in pulmonary tuberculosis have been given, but it is generally admitted that rest to the affected part is the most important factor. Since it is unlikely that any breathing occurs in the diseased area even before the pneumothorax is induced, the rest is obtained not because the area is immobilized, but because the introduction of air into the pleural cavity causes relaxation in the tensions acting on the lesion. Some workers argue that when the mediastinum is mobile changes in the tensions in one lung are transmitted, to some extent at all events, to the other lung. It has also been maintained, as the recent work of Lope and A. de Carvalho with angiography confirms, that there is much slowing of the circulation in the collapsed organ, while the circulation in the opposite healthy lung is definitely increased. The increase can be demonstrated even when the pneumothorax is quite small, and this hyperaemia has been held to account for the not infrequent rapid healing of lesions in the contralateral lung. The above two mechanisms were no doubt in the mind of Ascoli when, in 1930, he initiated the practice of contralateral pneumothorax in those patients in whom a pneumothorax on the diseased side could not be induced because the lung was adherent to the chest wall. It is essential that the mediastinum be mobile and that the pneumothorax be kept at a negative pressure, so that the respiration in the "collapsed" lung is little reduced. The ideal indication for a contralateral pneumothorax appears to be a large or recurrent haemoptysis originating from an adherent lung. In a recent paper[1] Max Fourestier discusses the close anatomical and mechanical interrelations between the two lungs and their vessels, and then describes in detail, on considerations that are largely theoretical, the action of a pneumothorax on the pulmonary circulation in the collapsed and in the contralateral lung. He adds the report of a patient with bilateral disease who did not respond to rest. An artificial pneumothorax was induced on the left, the worse, side. This, though kept at a negative pressure, produced some deviation of the mediastinum to the right, where a small cavity was replaced in the skiagram by a much larger diffuse shadow, which was interpreted as "congestion." Two months later the mediastinum was in the centre and the lesions on both sides were obviously healing. Four months later still, residual fibrosis was all that could be seen on either side. Throughout, the pneumothorax had been kept quite small and at a negative pressure both in inspiration and in expiration after each refill.

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The next session of the General Medical Council will open on Tuesday, May 25, at 2 p.m., when the President, Sir Norman Walker, M.D., will take the chair and give an address. The Council will continue to sit from day to day until the termination of its business.

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The seventeen new Fellows of the Royal Society elected on May 6 include one member of the medical profession, Dr. Alan Nigel Drury, lecturer in pathology, University of Cambridge, and Dr. Percival Hartley, Director of Biological Standards, National Institute for Medical Research.

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We regret to announce the sudden death of Sir George Badgerow, M.D., F.R.C.S., formerly dean and surgeon, Hospital for Diseases of the Throat, Nose and Ear, Golden Square, London, one of the best-known Canadians in London.

[1] *Arch. méd.-chir. Appar. resp.*, 1936, **11**, 377.

# ENDOCRINES IN THEORY AND PRACTICE

*This article concludes the series on Endocrinology contributed by invitation*

## THE HISTORY OF ENDOCRINOLOGY

BY

**SIR HUMPHRY ROLLESTON, Bt., G.C.V.O., K.C.B.**

### Nomenclature

The term "ductless glands" was used by the encyclopaedic Haller in the eighteenth century, that of "internal secretion" by Claude Bernard in 1855; "endocrine" and "endocrinology" (ἔνδον = within, κρίνω = I separate) came into use in this century. In 1905 Starling, on the look out for a synonym for "chemical messengers," adopted the suggestion of hormones (ὁρμάω = I excite) made by the late Sir W. B. Hardy and his classical colleague W. T. Vesey of Gonville and Caius College, Cambridge. Jayle (1937) argued that the word ὁρμῶντα, of similar derivation, in the book of the *Epidemic Diseases* of Hippocrates should be translated as "secretions," not as "movements," and from the context included internal as well as external secretions. The word "hormone" fitted secretin—discovered in the duodenum by Bayliss and Starling in 1902—a substance which stimulates the pancreas to secrete; but for chemical messengers which exerted the opposite, a depressing or inhibitory, effect the word chalones (χαλάω = I relax) was suggested in 1913 by Schäfer, who also proposed autacoids (αὐτος = self, ἄκος = drug) to include both forms. The words dysfunction, dysthyroidism, and dyspituitarism have been used in two slightly different senses: for an abnormal secretion of a gland—such as a thyroxine differing in its composition from that normally secreted in being incompletely oxidized, as was suggested by H. S. Plummer in toxic goitre; and for irregular or overlapping syndromes—such as cases of toxic goitre with some features of myxoedema or, with regard to dyspituitarism, combinations of hyper- and hypo-pituitarism, as Cushing pointed out in 1910.

The conception and the name of anti-hormones have recently been brought forward by Loeb, Aron, and Collip to explain the diminution of reaction which may follow long-continued injections of hormones. Collip and Anderson (1934) found that repeated experimental injection of the pituitary thyrotropic hormone was followed by the production of an anti-thyrotropic principle in the blood, which when injected into normal animals rendered them non-reacting. This mechanism would appear to tend to preserve the endocrine balance. The synonyms given by independent workers to the same hormone, especially those of the gonads and pituitary, may be puzzling and confusing; it is therefore to be hoped that a standardized nomenclature will be adhered to in the interests of clarity and precision.

### Organotherapy

The use of animal and human substances with medical intent is an ancient and widespread custom among primitive races, the origin of which has been ascribed to various superstitions, especially to totemism, but has also come about in a somewhat capricious manner. Sometimes, however, the underlying idea appears quite obvious—namely, that when a disease was thought to involve an organ—for example, the heart or the lungs—that organ was employed as the remedy. Incidentally it must be admitted that in the recent past a similar train of thought was suggested by some advertisements of glandular extracts. Evidence that organotherapy has long been practised is obvious from the contents of the early pharmacopoeias issued by the Royal College of Physicians of London, those between 1618 and 1746 containing a large number of nauseous substances which have often been compared to the contents of the witches' cauldron in *Macbeth* (1606).

### Pre-scientific Suggestions

The conception of internal secretions has been read into a remark of Théophile de Bordeu in 1775 to the effect that each organ gives off "emanations" which are necessary for the well-being of other parts of the body. Like some of his contemporaries, he also laid stress on the tonic effects of the secretions of the testes and ovaries. Legallois (1801) has been thought to have a more solid claim to be considered the forerunner of the conception of internal secretions. An important experimental proof of the internal secretion of the testes was published in 1849 by A. A. Berthold of Göttingen, who showed that transplantation of a cock's testes to another part of the body prevented the atrophy of the comb, which otherwise follows castration. This result he ascribed to the influence exerted by the testes on the blood and thus on the whole body. This observation, although the same, was shown to be true for the ovaries in 1900 by Knauer and by Halben, was forgotten until Biedl exhumed it in 1910, the year that Steinach published his conclusion that sexual desire and the secondary sex characters are controlled by the internal secretions of the gonads.

### Claude Bernard, Addison, and Brown-Séquard

Scientific activity in endocrinology otherwise dates from 1855, when two important events took place. On January 9, in a lecture at the Collège de France, Claude Bernard, who was much in advance of his time, pointed out that the liver had two secretions—an external one of bile into the intestine and an internal one of sugar directly into the blood. In the same year Thomas Addison of Guy's Hospital brought out his monograph *On the Constitutional and Local Effects of Disease of Supra-Renal Capsules*. In it he explained, more fully than in his address in 1849 entitled "On Anaemia: Disease of the Suprarenal Capsules," that in searching for the cause of "idiopathic" (afterwards called pernicious and later Addisonian) anaemia he "stumbled" (his own word) on the association of disease of the adrenals with the definite train of symptoms to which his name was attached by Trousseau in 1856. This stimulated Brown-Séquard in Paris to physiological research on the adrenals, and Sir Jonathan Hutchinson in London to collect clinical cases and post-mortem specimens. Brown-Séquard was a remarkable pioneer in endocrinology; probably quite unconscious of de Bordeu's speculative views, he expanded the conception of an internal secretion of the ductless glands to include all the organs and tissues of the body, thus anticipating the modern neuro-humoralism, though mainly on a basis of keen imagination. Further, when a septuagenarian, his enthusiastic advocacy of the rejuvenating effects of testicular emulsions, though naturally arousing adverse criticism, yet focused attention on the

hormonal effects of the gonads. In 1856 he found that removal of the adrenals was fatal, and ascribed this to toxaemia, poisons normally produced being no longer neutralized or removed by the adrenals. In the discussion which followed it was suggested that the results were due to the operative damage to the sympathetic. But the hypothesis that the ductless glands exerted a detoxicating effect was widely accepted, and in the case of the adrenals was not abandoned until after 1894, when Oliver and Schäfer, by experimental injection of extracts of adrenals, discovered in the adrenal medulla the pressor substance adrenaline. This, the first hormone to be thus established, was isolated in 1901 by Takamine and by Aldrich, and was synthesized in 1904 by Stolz. The active principle of the cortex, called "cortin" by Hartman (1928) and "eschatin" by Swingle and Pfiffner (1930), has been proved to be the hormone absence of which is responsible for the symptoms of Addison's disease, thus reversing the previous belief that these symptoms were due to absence or deficiency of adrenaline.

### The Thyroid

The knowledge that the symptoms of endocrine inadequacy are due to the absence or diminution of an internal secretion present in, and necessary for, health was first established in the case of the thyroid.

Attention may be directed to two early but little-known anticipations of an internal secretion of the thyroid. In 1836 Wilkinson King, lecturer on pathology at Guy's Hospital in succession to Thomas Hodgkin, described the passage of the secretion of the thyroid into its lymphatics and so into the great veins, and clearly foresaw the internal secretion of the thyroid. In 1850 T. B. Curling, surgeon to the London Hospital, in reporting "Two Cases of Absence of the Thyroid Body and Symmetrical Swellings of Fat Tissue at the Sides of the Neck, Connected with Defective Cerebral Development," wrote: "I am not acquainted with any case on record in which a deficiency of the thyroid body has been observed in the human body," and added, "It is highly probable that this abnormal secretion of fat was dependent on the absence of those changes which result from action of the thyroid."

In 1871, when the endemic form of cretinism, recognized in the sixteenth century in the Duchy of Salzburg by Paracelsus, had practically died out in this country, Hilton Fagge described sporadic cretinism. He then prophesied that this condition might occur in adult life. Two years later his senior at Guy's Hospital, Sir William Gull, described "a cretinoid condition supervening in adult life in women," which in 1877 W. M. Ord named myxoedema. This was followed by active research into the physiology of the thyroid; the effects of thyroidectomy performed in 1858 were republished by Moritz Schiff in 1884, and repeated by Sir Victor Horsley in 1885, and by others. Clinical observations were widely reported, and in 1883 Sir Felix Semon put forward the view, at first derided but subsequently confirmed, that cretinism, myxoedema, and post-operative myxoedema (cachexia strumipriva) were all due to insufficiency of the thyroid gland.

Other diseases due to diminished endocrine activity or its suppression are parathyroid tetany, eunuchoidism, and disorders due to hypopituitarism—for example, adiposogenital dystrophy, described by Babinski in 1900 and more fully by Fröhlich in the following year, and Simmonds's pituitary cachexia (1914), of which progeria ($\pi\rho\acute{o}\gamma\eta\rho os$ = prematurely old), described by Sir Jonathan Hutchinson (1886) and given that name by Hastings Gilford in 1904, appears to be the juvenile form.

An interesting historical point in therapeutics is the alternating association and neglect of iodine in connexion with (*a*) the occurrence of goitre in districts poor in iodine, (*b*) the prophylactic treatment of simple goitre, and (*c*) the treatment of toxic goitre. Seaweed and sponge had been empirically used in the treatment of simple goitre centuries before iodine was isolated in 1814. In the first quarter of the last century it was employed with such enthusiasm that the resulting iodism led to its almost complete abandonment. In the middle of the last century Chatin's inquiries suggested that iodine want was responsible for goitre; but the prophylactic use of iodine was not widely established until after the success obtained in 1916 by Marine and Kimball in North America. Toxic goitre was treated in the middle of the last century by iodine, for example, by W. B. Cheadle in 1869; but this method went completely out of fashion until about 1921.

### Diseases Due to Excess of Endocrine Secretion

After it was established that absence or deficiency of the internal secretion of the thyroid caused symptoms which could be relieved by substitution treatment—namely, by the injection of an emulsion of the gland, as was done by G. R. Murray in 1891 or later by an extract by the mouth (Hector Mackenzie; E. L. Fox, 1892)—a further question excited interest. This was whether an excess of the normal secretion or an altered secretion produced morbid symptoms the reverse of those due to absence or deficiency of the secretion. This possibility had in fact been suggested earlier, before the introduction of the successful treatment of myxoedema by thyroid extract: Rehn in 1884 regarded toxic goitre as due to excessive thyroid secretion, and Möbius two years later argued that the disease was caused by an abnormal activity of the thyroid which poisoned the body. Much later, in 1923, H. S. Plummer and Boothby stated that exophthalmic (or toxic) goitre was due to two factors—namely, an excess of normal thyroxine and an abnormal thyroxine—whereas toxic adenoma was caused by an excess of normal thyroxine alone. Harington (1933) strongly criticized the idea of an abnormal internal secretion in toxic goitre, and the general principle that pathological states of endocrine glands may produce too much or too little of their internal secretion but do not manufacture abnormal compounds has recently been emphasized by Cameron (1936). Hyperplasia, adenomas, and, less often, carcinomas of the endocrine glands may, for this is not constantly the case, secrete the hormones proper to the glands, but their altered histological structure logically suggests that their secretion would also be abnormal.

Diseases other than toxic goitre ascribed to excessive endocrine secretions are: (i) acromegaly, at first confused clinically with myxoedema, due to adenomatous growth and overactivity of the eosinophil cells in the anterior pituitary, the anterior lobe being incriminated by Tamburini in 1894 and the responsibility of the eosinophilic adenomas established in 1901 by Benda. (ii) Small adenomas composed of basophil cells in the anterior lobe ("pituitary basophilism") were described as responsible for a remarkable train of symptoms by Harvey Cushing in 1932—deservedly called "Cushing's syndrome"; much discussion has been excited about its relation to, or identity with, the adrenogenital syndrome. (iii) Although Addison's disease in 1855 was the first endocrine disease to be described, it was half a century later that Bulloch and Sequeira (1905) correlated the adrenogenital syndrome of virilism with tumours of the adrenal cortex. The association of tumours of the chromaffin cells (chromaffinomas or phaeochromocytomas) of the adrenal medulla with

paroxysmal crises of hypertension has been quite recently established. This condition contrasts with the persistent hypertension seen in some tumours of the adrenal cortex. (iv) Adenomas of the parathyroid glands were associated in 1904 by Askanasy with von Recklinghausen's generalized osteitis fibrosa cystica, but this was not definitely recognized until 1926. (v) Adenomas or hyperplasia of the islands of Langerhans (hyperinsulinism) give rise to spontaneous hypoglycaemia, a morbid state which was not recognized until 1924 by Seale Harris, after it had been produced by the administration of insulin to animals and described early in 1923 by Banting, Campbell, and Fletcher before insulin was available in this country.

### Parathyroids

Though described in man and animals in 1880 by I. V. Sandström of Upsala University, the parathyroid glands did not attract any attention until 1891, when Eugène Gley of Paris independently described them in animals. At first they were regarded as accessory thyroids, but Kohn (1895) stated that they are anatomically and physiologically distinct from the thyroid, and in 1909 MacCallum and Voegtlin proved that they control calcium metabolism and that their removal is followed by tetany. Before the recognition of the parathyroids some of the symptoms following total thyroidectomy, which were really due to simultaneous removal of the parathyroids, were ascribed to removal of the thyroid. The isolation and standardization of a powerful parathyroid extract by Collip (1925) and the association of hyperparathyroidism, due to adenomatous change in the parathyroids, with generalized osteitis fibrosa cystica (1926) are milestones in the physiology and pathology of the parathyroids.

### Multiglandular Syndromes

The conception of inadequacy of several endocrine glands was initiated in 1907 by Claude and Gougerot, and was followed in 1908 by that of the interaction and interdependence of the endocrine glands or the endocrine balance, brought forward by Eppinger, Falta, and Rudinger. The idea of multiglandular syndromes—namely, co-existent primary disturbance of more than one endocrine gland—met with considerable criticism. The position has been altered and clarified by the discovery of the controlling influence of the anterior pituitary over the other endocrine glands, by means of its thyrotropic, adrenotropic, gonadotropic, and other hormones.

### The Pituitary

The pituitary, now the predominant endocrine gland, was later than the adrenals and the thyroid in attracting modern investigation; for in 1889, in a review of nervous physiology, it was dismissed as having little if any use in the organism of the higher vertebrates, and in the same year Alexander Macalister, professor of anatomy at Cambridge, described it as "probably the rudiment of an archaic sense organ." Like the thyroid and pineal, it was known to Galen; Vesalius (1543), believing that it collected waste material (*pituita* = phlegm, slime) from the brain and in some way conducted it into the nasopharynx, gave it what is still its familiar name, although a century later C. V. Schneider and Richard Lower destroyed the basis for such a title. Soemmerring (1778) called it the hypophysis. Like the pineal or epiphysis, it was thought to be concerned in the regulation of the cerebro-spinal fluid by Sylvius of Leyden and Vieussens in the seventeenth century, and even as late as 1842 by Magendie. Pierre Marie in 1886 gave the clinical account of acromegaly which in the following year was connected with the pituitary by Minkowski, and thus directed attention to the gland; but it was not until this century, especially since 1905, that its physiology and pathology were exhaustively investigated, particularly by Harvey Cushing, whose epoch-making work *The Pituitary Body and its Disorders* appeared in 1912. The pituitary now bears much the same relation to the other ductless glands that the brain does to the remainder of the nervous system. Unlike the thyroid, parathyroids, and adrenal medulla, which each secrete one hormone only, the pituitary has been thought to manufacture an increasing number of active principles or hormones—the anterior pituitary as many as fourteen and the posterior seven—but doubt has been expressed, especially by Abel (1924), whether each different action of pituitary extracts is necessarily due to a separate hormone. The pituitary hormones chiefly, if not entirely, act by stimulating other endocrine glands, the thyroid, adrenals, gonads.

Thus hyperpituitarism—hyperplasia and correspondingly increased secretion of eosinophil or of basophil cells in the anterior pituitary—may be followed by similar reactions in the adrenals, gonads, and thyroid. It has been suggested, but not proved, that the thyroid changes in exophthalmic (or toxic) goitre are primarily due to excessive secretion of the thyrotropic hormone by the anterior pituitary. On the other hand hypopituitarism due to disease, for example, by infarction as in pituitary cachexia (Simmonds's disease, 1914), or to experimental hypophysectomy, is followed by atrophy not only of the dependent endocrine glands but of the body generally. The interrelations between the anterior pituitary and other endocrine glands are, at any rate in some instances, reciprocal; thus castration gives rise to the cellular changes known as "castration cells," and the corpus luteum of pregnancy causes the formation of "pregnancy cells" in the anterior lobe of the pituitary.

### The Islands of Langerhans

The islands in the pancreas, described in 1869 by P. Langerhans, were in 1893 named after him by Laguesse, who with Hédon in that year concluded that the islands provided the internal secretion of which the experimental production of fatal diabetes mellitus by excision of the pancreas in 1889 by von Mering and Minkowski had shown the existence. In 1902 Opie described hyaline degeneration of the islands in diabetes mellitus. In the next twenty years there were several attempts to treat diabetes mellitus by pancreatic extracts, especially by Zuelzer in 1908; but these preparations produced such severe reactions from the contained proteins that they were abandoned. The hormone was named "insuline" in advance (before it was obtained protein-free in 1922 at Toronto) by de Meyer in 1910 and independently by Schäfer in 1916. After first calling their hormone "iletin," Macleod, Banting, and Best in 1922 adopted the slightly modified name insulin.

### The Gonads

Though from the eighteenth century the gonads were vaguely thought to exert what is now recognized as an endocrine influence, and although the first experimental evidence of a testicular, and indeed of any, hormonal function dates back to Berthold in 1849, further scientific advance in this direction is of quite recent origin. During the last few years the output of scientific investigation

has been enormous, so much so that the practical application of this new physiological knowledge has not had time to keep abreast. The sex hormones and their relations to the anterior pituitary have thus been recognized, and their extreme complexity, especially of the female hormones, has become manifest. Probably the services of organic chemistry are now more important here than in any other branch of endocrinology.

### Methods of Endocrine Research

These comprise: (1) Correlation and comparison of the clinical features with the morbid changes in the endocrine glands, the method employed by Addison. With this may be associated observation of substitution treatment—namely, the clinical effect of (*a*) administration of an extract of the gland, damaged or rendered inadequate by atrophy or disease; or (*b*) removal of a gland considered to be over-active, such as the thyroid in exophthalmic goitre, or of an adrenal in the adrenogenital syndrome. (2) Experimental removal of normal glands and, when symptoms have been thus produced, grafting the same gland into the animal or by giving extracts of the gland parenterally. (3) The new method of extending over successive generations of animals either (*a*) excision of the endocrine organ or (*b*) administration of its extract. Employing this technique Rowntree, Hanson, and their co-workers have brought forward evidence to show that the thymus (1934) and the pineal (1936) are endocrine glands controlling growth and sexual development. (4) The isolation, crystallization, and synthesis of hormones by organic chemists, a comparatively recent and most important line of advance.

### Neuro-humoralism

The vegetative portions of the animal body appear to be controlled by a double or alternative mechanism—namely, by nervous and by chemical messages. In 1904 T. R. Elliott suggested that nervous impulses of the sympathetic may act on the effector cells at the periphery by the liberation of adrenaline. In 1906 W. E. Dixon found that a heart submitted to vagal stimulation liberated a body which inhibited the frog's heart; this hypothesis was followed up by Loewi (1921), Dale (1929), and Cannon (1933), and Dixon's "inhibitin" has been called "vagal substance," acetylcholine, and parasympathin. Acetylcholine therefore stands in much the same relation to the parasympathetic as adrenaline does to the sympathetic division of the autonomic system.

In this short essay on the history of endocrinology it was inevitable that reference should be made to what is happening to-day. The future historian of the subject, indeed, may look upon "to-day" as the most important and fruitful period in the development of a science to which the clinician has made such valuable contributions. What these are is plain to the reader of the previous articles in the series, which fill the many large gaps in this survey and bring the story of endocrinology up to the present moment.

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# Nova et Vetera

## THE CORONATION AND A DISUSED RITUAL

[FROM A CORRESPONDENT]

The practice of touching for the king's evil is no doubt as dead as Queen Anne, the last of our monarchs to essay the therapeutic art. Yet for all those who decline to regard history as "bunk" any matter which was for centuries closely connected with the sovereignty of England cannot in this year of the King's crowning be without interest.

In 1911, the year of the Coronation of King George V, a scholarly series of lectures was delivered by Sir Raymond Crawfurd before the Royal College of Physicians, and subsequently published by the Clarendon Press under the title of *The King's Evil*. Since the publication of this volume there appears to have been no further detailed investigation of the subject. It seems opportune, therefore, to gather up and supplement the result of these earlier researches.

### History of the Practice

In England the beginning of the practice may be reckoned as dating from the reign of Edward the Confessor, who died in the year 1066, though in France the ceremony is referred back to the Coronation of Clovis in A.D. 496. It began soon to be debated by the chronicler William of Malmesbury and the monks whether the Confessor had cured by virtue of his own holiness or whether the power had been transmitted to him by his royal ancestors. These healings seem at first to have been of many diseases—leprosy, plague, jaundice, and possibly tubercle—and from the large numbers touched at later dates it must surely be inferred that the term "scrofula" was extended to cover not only glandular swellings of the neck, but swellings of any kind in any part of the body. Evidence of the practice is lacking during the reigns of William II, Henry I, and Stephen. It was revived by Henry II, but there is no evidence that John or Richard I ever touched—the latter King being very little in England. With Edward I we are on firmer ground, for the Household accounts (1277–8) of that monarch show "for 17 sick persons signed by the King 17d.," and in one month he touched 533 persons. During the fifteenth century there are few cases recorded, but Henry VII restored the practice and added a new ceremony, giving to each person an angel—a gold coin with the figure of St. Michael on the obverse. The service employed, together with others, has been preserved, and there was little alteration in the forms until the rite was finally discontinued after the death of Queen Anne, except that after the Reformation the office was said in English and some few markedly Roman Catholic characteristics, such as the invocation of the Virgin Mary and the Saints, were omitted. The words of the first Gospel, "They shall lay their hands on the sick and they shall recover," were repeated by the chaplain so long as the King was handling the sick persons. The concluding words of the second Gospel, "That was the true Light, which lighteth every man that cometh into the world," were similarly repeated "as long as the King shall be crossing the sore of the sick person with an Angel Noble, and the sick person is to have the same Angel hanged about his neck and to wear it until he be full whole." The dissolution of the monasteries by Henry VIII led to a large increase in the numbers of the sick poor, for whom there was now no provision; and —though there is no certainty that Edward VI touched—this led to a great number attending the court both of Mary and of Elizabeth to obtain relief. Queen Mary's Manual, formerly in the possession of Cardinal Manning, contains three miniatures, (1) showing the Queen blessing cramp rings, (2) a crucifixion, (3) the Queen clasping the swollen neck of a boy with both hands.

William Tooker, chaplain to Elizabeth and afterwards Dean of Lichfield, in his little book, *Charisma: Sive Donum Sanationis*, presents a surprising picture of the Queen in her earlier years. "How often have I seen her Most Serene Majesty prostrate on her knees, body and soul wrapt in prayer calling upon God and beseeching the Saviour Christ for such as these: how often have I seen her with her exquisite hands whiter than whitest snow boldly and without disgust pressing their sores and ulcers and handling them to health, not merely touching them with her finger-tips." Those who presented themselves had undoubted faith, and were confident of recovery. Nor were they disappointed: "Some at once, some more some less quickly and after a longer interval, most of them arrived safe and sound at an excellent state of body and permanent condition of good health." More particular accounts of individual cases may also be found. Clowes, physician to the Queen, writing in 1602, records one of his patients as saying: "I thank God and the Queen of England I am by her Majesty perfectly cured and healed; and after Her Grace had touched me I never applied any medicine at all, but kept it clean with sweete and fresh cleane cloathes, and now and then washed the sore with white wine; and thus all my griefes did consume and waste cleane away." This treatment was certainly more wholesome than some medical practices of the period.

The current belief was no doubt expressed by Shakespeare in *Macbeth*, Act IV, Scene iii:

> Malcolm: . . . "'Tis called the evil:
> A most miraculous work in this good king;
> Which often, since my here-remain in England,
> I have seen him do. How he solicits heaven,
> Himself best knows: but strangely-visited people,
> All swoln and ulcerous, pitiful to the eye,
> The mere despair of surgery, he cures;
> Hanging a golden stamp about their necks,
> Put on with holy prayers: and 'tis spoken,
> To the succeeding royalty he leaves
> The healing benediction."

James I was not anxious to continue the practice, but the English nobility did not desire to see aught of the royal prerogatives diminished. In letters sent to the Vatican it is recorded (we quote Crawfurd's translation) that "the King at this time began to take an interest in the practice pertaining to certain ancient customs of the Kings of England respecting the cure of persons suffering with the king's evil; so when some of these patients were presented to him in his ante-chamber he first had a prayer offered by a Calvinist minister, and then remarked that he was puzzled as to how to act. From one point of view he did not see how the patient could be cured without a miracle, and nowadays miracles had ceased and no longer happened; so he was afraid of committing a superstition. From another point of view, however, inasmuch as it was an ancient usage and for the good of his subjects, he resolved to give it a trial, but only by way of prayers, in which he begged all present to join him, and then he touched the sick folk."

### Rules and Regulations

The forms of prayer used by James I and Charles I are found in contemporary prayer books, and there are many proclamations in the State papers laying down regulations. Access to the Court is forbidden during the hot weather, doubtless from fear of the plague; Easter and Michaelmas are the times usually fixed for the healing. Clergy and churchwardens are to certify that the sufferer has not been touched before. Persons are to be examined by physicians to testify that they are really suffering from the evil. That the King's power was almost universally believed in cannot be doubted. Sancroft and many of the bishops, besides leading Church historians, bear witness to the same effect. Collier says: "To dispute the matter of fact is to go to the excess of scepticism." Entries in parish registers record grants of money made to enable poor persons to proceed to London. During the Commonwealth the practice fell into abeyance, Cromwell not presuming to exercise it, but at the Restoration there was a great revival. The good-natured monarch Charles II did not repel any wishing to attend, and it is computed that during his reign he must have touched 90,000 persons. He did it with "great gravity," says Pepys. Unauthorized healers sometimes arose who were prosecuted as usurpers of the Royal Prerogative. A dissenting preacher was for this offence condemned to death by Judge Jeffreys, but was pardoned by Charles, who was not disposed to press his prerogative unduly.

William III declined to touch: "It is a silly superstition," he said. "Give the poor creatures some money and send them away." Once he relaxed. "God give you better health and more sense." Queen Anne, though admitting that the crown was now held on a Parliamentary tenure, never quite divested herself of the conception that as of royal descent she had powers beyond the common. She revived the practice, and as is well known twice touched Samuel Johnson, though, says Boswell, without effect. Johnson's touch-piece is in the British Museum. Before Charles II current coin was pierced and hung round the devotee's neck. In Tudor times the angel was commonly used, and many of them are found pierced. Charles I is said to have used also specially minted angels. With Charles II begins the series of true touch-pieces, of gold or silver, and of varying sizes: each Stuart King, actual or presumptive, used his own touch-piece, the last being that of Henry IX, Cardinal of York. Queen Anne was a firm believer in the efficacy of her touch. In a letter to the Duchess of Marlborough, April 29, 1706, she says: "I desire you would order 200 pieces more of Healing Gold, for I intend (an it please God) when I come from Windsor to touch as many poor people as I can before hot weather comes. I do that business now in the Banqueting House, which I like very well, that being a cool room, and the doing of it there keeps my own house sweet and free from crowds."

George I referred supplicants to the Pretender at St. Germain. He, as also Charles, Edward, and the Cardinal of York, although they had not received unction at Coronation, continued the practice. In France it persisted much longer. Louis XVI touched at his Coronation in 1775, and Charles X revived the ancient ceremonial in the year of his accession, 1824, when he touched 121 persons, the last semblance of the principle of the divine right of kings.

### Reasons for Belief in the Ritual

The true explanation of these non-medical miracles of healing, as of those at Lourdes, may one day be found, and they may be shown, as Quain suggested, to fall within the domain of scientific fact. At present, however, no satisfactory explanation is forthcoming, except in so far as the belief of devout Roman Catholics assigns as the reason a direct intervention of divine power.

Notwithstanding the arguments of materialistic philosophers the number of the faithful who flock to Lourdes continues to increase year by year; they are now nearly a million annually. Should the King resume the practice of touching at his crowning (though of this there is no report) it can hardly be doubted that many would be found to attend; and who shall say that His Majesty might not be as successful as some other metaphysical healers? It is more probable that His Majesty's advisers will deem it better that the public should regard King Edward's Hospital Fund as a sufficient royal contribution to the furtherance of the healing art.

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The Paris Academy of Surgery has awarded the international Lannelongue medal of surgery to Dr. A. Lambotte, honorary professor of the Brussels Faculty of Medicine, for his work on bone surgery.

# CARE AND AFTER-CARE OF THE TUBERCULOUS

## CONCLUSION OF EMPIRE CONFERENCE

The Empire Conference on the Care and After-care of the Tuberculous, the first three sessions of which were reported last week at page 987, concluded its discussions on May 5 with contributions from various countries, but especially India and East and West Africa, on tuberculosis control in those regions.

### Surgical Tuberculosis

Sir HENRY GAUVAIN discussed some problems of surgical tuberculosis. Conservative treatment, he said, was the procedure of choice in most cases of surgical tuberculosis, with a few rather striking exceptions. For example, in tuberculous disease of the knee-joint in an adult, after perhaps three months' conservative treatment, excision should be practised. With regard to tuberculous glands of the neck, the treatment had given rise to some controversy. Some surgeons advocated immediate excision. On the other hand, many tuberculosis officers followed a conservative treatment. Actually the method depended on the individual needs of the patient. If there was one large fluctuating gland and it was aspirated it would probably heal without difficulty, but if there was a mass of glands the patient should first of all have conservative treatment. He advocated fixing the neck with a light metal carapace, which gave the patient a chance of resting his back. Light treatment should be applied in very even minimal doses, and in that way and with fixation the glands might disappear completely. Even if they did not disappear they became more discrete, and it was easier to excise them after three months' trial of the resting method. The procedure of excision should be regarded as a major operation. Sir Henry Gauvain also touched on a tuberculous condition of which, he said, more and more was seen—tuberculous glands of the mesentery. Here again the ideal treatment was rest. An important point was careful dieting and avoidance of roughage in diet.

### Tuberculosis Control in Scotland

Dr. ERNEST WATT, representing the Department of Health for Scotland, after outlining the successful history of the anti-tuberculosis campaign in Scotland, said that there were now beds in the proportion of 1 to 900 of the population, distributed over some 112 institutions. With regard to after-care and the very important matter of supervision of contacts, the latter should not be limited to child contacts if success was to be assured. Supervision must be continued throughout young adult life at least. Was it over-ambitions to suggest that the dossier of each member of a contact family should contain an *x*-ray film of the chest for purposes of comparison when, later in life, sickness or any suspicious condition occurred? Observations along similar lines should be extended to the young adult, contact or other, entering upon factory or scholastic life.

Modified colony and workship conditions had been in operation at two centres in Scotland. The opinion had been expressed that Scotland's problem in this respect did not justify expansion along village settlement lines. An outlet had been found at Papworth and Preston Hall for a number of colonists from Scotland, and so long as such an outlet was freely taken advantage of further development in Scotland would not be justified. In the after-care of the ex-sanatorium patient the orthopaedic specialist service in the industrial parts of Scotland would give second place to none, and even in the most outlying areas a very satisfactory service was available.

This account from Scotland was followed by some remarks by ISHBEL, MARCHIONESS OF ABERDEEN, president of the Women's National Health Association in Ireland, who described in particular the establishment of the two sanatoriums at Peamont, near Dublin, and at Rossclare, near Enniskillen.

### Tuberculosis Control

After a brief discussion on the resettlement of the tuberculous ex-soldier, to which Dr. J. B. MCDOUGALL and others contributed, Dr. G. LISSANT COX, central tuberculosis officer, Lancashire, read a paper on the scheme for control of tuberculosis in the County Palatine. He described it briefly as based on the principles of "find, isolate, educate, and treat the adult positive case." From 1914 to 1935 the death rate from pulmonary tuberculosis in the administrative county had fallen from 0.87 to 0.46 per 1,000 of population, and from non-pulmonary tuberculosis from 0.32 to 0.10.

Dr. L. S. T. BURRELL briefly discussed the function of the hospital in the tuberculosis problem, and also gave some account of the growth of the work at Brompton. In his view the hospital had three functions: to treat the early case and prepare for sanatorium treatment: to deal with the serious case of advanced disease, largely for the protection of the community; and to serve as a centre for diagnosis. Lord HORDER said that Dr. Burrell might have added a fourth function, that of teaching.

Dr. PHILIP ELLMAN said that despite advances such as artificial pneumothorax and thoracic surgery, the problem of the relapsed case still remained. He gave three reasons for relapses: (1) the return to bad home conditions; (2) insufficient attention to nutrition after discharge from the sanatorium; (3) the stress of competition in the employment market. He deplored the policy of some local councils whereby the last person to be given a council house was the ex-tuberculous patient. Institutional treatment was only one aspect of the case: the continuing care and safeguarding of the patient was above all necessary.

### India and the Near East

Dr. P. V. BENJAMIN of South India gave the results of a tuberculin survey of 3,000 individuals in the Chittoor district, near Madras. The positive reactors numbered over 40 per cent. among adults and 11 per cent. among children. Lately, with the rapid growth of communications and the springing up of crowded industrial centres, the tuberculosis problem in India had received a new aspect of urgency. The fact that practically only one type of acute exudative disseminated pulmonary tuberculosis was met with rather suggested that much of the disease might be due to auto-inoculation brought on by undue stress or unfavourable environment. Sir CUTHBERT SPRAWSON, Director-General, I.M.S., said that as a whole the native population of India was more susceptible to tuberculosis than that of Great Britain, and the disease in India often tended to run a more acute course. He urged the establishment of tuberculosis colonies or settlements. If every city with a population of 100,000 or over were to start a tuberculosis settlement just outside the municipal limits, with accommodation and arrangement for expert treatment of all types of tuberculosis, a great step would be taken towards the improvement of public health.

Mr. NORMAN H. MACLENNAN, representing the Department of Public Health, Palestine, recounted the conditions in that country. The figures for tuberculosis could only be adduced on the basis of the death rate in the seventeen principal towns of Palestine. On this basis the mean average death rate for 1930–4 from tuberculosis was 516 per million population, the pulmonary form accounting for 387. The disease in Palestine reached an endemic importance equal to that experienced in England, and it seemed probable that the incidence was increasing. From the scanty historical information available the disease had been present for centuries in Palestine. In the past its effects had been confined more or less to the large urban

communities, but the unparalleled development of Palestine of recent years had deprived the rural communities of their isolation, and promoted an extension of the disease among them. The incidence of the disease and the mortality from it was greatest among the Mohammedan community.

### The African Races

Dr. CHARLES WILCOCKS, representing the medical services of Tanganyika Territory, addressed the conference on the tuberculosis problem in Central Africa. Of the five million native population, mostly of Bantu origin, in Tanganyika, a large proportion of those who died did so without having been treated by a qualified medical practitioner. They lived under primitive conditions, of which he gave a vivid description, but the conditions were changing rapidly under the influence of education, and the people were now frequently finding employment away from their homes. In a survey with tuberculin of representative groups he found out of 9,866 examinations, 114 cases of definite tuberculous disease, and there were over 50 per cent. positive reactors. The higher tuberculin rates were found in the districts of densest population. The great majority of cases were infected by the human type; there were very few cases of bovine infection. His conclusion was that tuberculosis was present throughout Tanganyika, and the natives could not be regarded as virgin soil.

Dr. A. D. PRINGLE, whose previous communication on the European populations of the Transvaal and Natal was summarized in the last issue, supplemented it by some account of the care and after-care of the tuberculous native, and other contributors to the discussion, which ranged over tuberculosis throughout the Empire, were Dr. J. CAUCHI of Nigeria, who dealt with tuberculosis in West Africa, Dr. G. M. C. POWELL of Northern Rhodesia, Dr. R. B. MACGREGOR of the Straits Settlements, and the Hon. FRANCIS GAHA, Minister of Health for Tasmania. Mr. Gaha stated that his Government was about to establish a full-time free medical service for people living in the remoter parts of the State. It was not intended to place medical officers in these remote regions and leave them there; they would be drafted back to the cities at frequent intervals for refresher courses in hospitals as resident medical officers.

After this full exchange of experiences and views, extending over three days, those attending the Conference paid visits to Brompton Hospital and the Papworth Settlement.

## MEASUREMENT IN EXCELSIS

### WORK OF THE N.P.L.

The report of the National Physical Laboratory[1] appears this year in a new dress—royal octavo instead of quarto—and is of only half its usual bulk, being much more handy and readable. The work of this great institution at Teddington, which employs about 700 persons, is carried on in eight departments, in all of which a vast amount of general research and routine testing is done. As an instance of the refinement to which measurement is now carried a description is given of what is probably the most accurate experiment ever completed. Its object was to confirm, or otherwise, the theory of relativity whereby it is impossible by physical measurement to detect the motion of the earth through the ether of space. The experiment consisted in comparing the period of vibration of a quartz rod with that of a similar oscillator placed successively in a series of different positions so that its axis was rotated through 360 degrees. The fact that the general theory of relativity was confirmed seems much less impressive than the extraordinary accuracy whereby no difference in period exceeding four parts in one hundred thousand millions could be detected.

[1] *National Physical Laboratory Report for the Year 1936.* H.M. Stationery Office. (2s. 6d. net.)

### Estimation of Noise

On a less ethereal plane the institution has been doing a great deal of work on the measurement of noise. It has been investigating for the Ministry of Transport the noise from mechanically propelled vehicles under varied conditions of use. A noise meter has been developed which gives dial readings corresponding to aural loudness of noises, including those of an intermittent and impulsive character. Tests have shown that motor cycles are in general the worst offenders, with some sports cars and commercial vehicles not far behind in nuisance value. A noise level of 90 phons—the phon being a unit of equivalent loudness recently set up by the British Standards Institution—is recommended as a limit which should not be exceeded by new motor vehicles. Sound insulation in buildings has also received attention, and such conclusions as that the insulating value of a solid wall can be increased appreciably by the application to both sides of plastered building board fixed to battens, or that partitions of lath and plaster or fibre board on each side of wooden studding are superior to single partitions of the same weight, are of value in a period when people live and work in ever closer proximity.

### Work in Radiology

The National Physical Laboratory continues its useful work in radiology, the term here including the industrial as well as the medical uses of *x* rays. *X*-ray diffraction or crystal analysis investigations are beginning to find a wide application in industry. One piece of work along this line which is of medical interest is the *x*-ray study of tooth structure, undertaken for the Medical Research Council. This study has shown that the main crystalline constituent of the enamel is identical with that of the underlying dentine, but that while the crystallites in the dentine are arranged at random there is a marked fibre structure in the enamel, and that a high quality of enamel is associated with a well-marked fibre structure. It appears that in the case of the enamel the calcification is the more marked the later the enamel is formed in the life of the tooth, while the opposite holds for the dentine.

The work done in optics has found a useful application for the protection of the *x*-ray worker from the dangerous stray radiations emitted from modern radiation plants. A viewing system consisting of spherical mirrors arranged on each side of a massive protecting wall is being tried, so far with satisfactory results. The patient can be clearly viewed through an aperture in the wall 3 in. in diameter several feet above the head level of the observer, so that he may carry on his work in perfect safety. Further work has been done on the approximation of *x*-ray and radium measurements, and it has been found that the röntgen—the unit of *x*-ray quantity introduced by international agreement in 1928—can equally well be used for gamma measurements. The quantity of gamma rays produced from one milligramme of radium filtered by one-half millimetre of platinum amounts to 7.8 röntgens an hour at one centimetre from the source. It has also been shown that small closed ionization chambers similar to those used in *x*-ray work may be employed to measure the dose from a radium source if suitable precautions are taken. Thus there is resulting a unification of *x*-ray and radium dosage measurements—an important conclusion from the point of view of the medical radiologist. The amount of radium measured by the laboratory during the past year was 8½ grammes in some 1,100 containers. Since the beginning of its work it has measured 130 grammes of radium, or one-fifth of the world's estimated supply. The amount of radium now in Great Britain is believed to be about 100 grammes, of which about one-quarter is owned by the National Radium Trust.

# REFORM OF MEDICAL CURRICULUM

## DEBATE IN EDINBURGH

A discussion, attended by over 200 students and others, regarding changes that might with advantage be made in the training of medical students, took place in the Edinburgh University Union on May 6. Sir FRANCIS FREMANTLE, chairman of the Parliamentary Medical Committee, in opening the discussion said that even in present-day medical education there was a faulty idea in pathology, for the causation of disease did not always begin with the condition of the individual and of the invading organism as found in hospital. The cause ought to be traced back to the home, school, or factory, and to the whole life and surroundings of the individual which had originally enabled the cause to arise, the germ to breed, or the patient to be susceptible. At present the patient after treatment returned home with only the crudest general advice as to how he should fight the same conditions again. The cause, treatment, after-care, and prevention of disease were therefore of the first importance, and in this the dispensary system that prevailed in Edinburgh could be of enormous value in teaching. Some change in the system of examining medical students was also required. Both the General Medical Council and the British Medical Association recognized that the student should be judged not merely by his facility in passing an examination but by his record of work in quantity and quality, and by the intelligence he had displayed throughout his period of study. The General Medical Council in 1936 had finally adopted resolutions which would come into force in 1938, but these resolutions had been originally suggested in 1922, and very little had been done to put them into effect. Something far quicker and more effective than the G.M.C.'s slow, quiet, toning up of medical education was necessary if the medical student was to face future needs as well as the present limited requirements of his professional life. As at present constituted the G.M.C. consisted, with few exceptions, of men saturated with the limited outlook of thirty years or more ago. Moreover, the natural tendency of Parliament was to leave the medical profession to manage itself, and this was done at present by the heads of the various medical corporations. He concluded by saying that reform must come from the individual medical schools. Edinburgh University had an exceptional opportunity—it had made a splendid start by its keenness on the subject—to lead those in England and to lead the whole world.

### THE CURRICULUM AND THE GENERAL PRACTITIONER'S NEEDS

Dr. G. O. BARBER of Cambridge University and St. Mary's Hospital, speaking on "The Standpoint of the General Practitioner," said that the medical student had little opportunity of realizing how greatly different the day's work of a general practitioner was from the training he received in hospital. The public had a touching faith in the letters which a newly qualified man wrote after his name, and believed that any student who had successfully passed examinations was qualified to look after his patients in health and illness. In actual fact such letters showed that the student had achieved a high standard in a number of disconnected academic scientific subjects. For this, however, and for the present system no blame rested upon the teachers themselves, for they were bound partly by tradition and partly by the recommendations of the General Medical Council with regard to the conduct of examinations. The medical student's attitude towards what he was taught was largely, "Will this help me to pass my examinations?" instead of "Will this eventually help my patients?" Dr. Barber believed that more time should be allowed for the student to learn how to think and how to teach himself, and that there ought to be less cramming. Systematic lectures should be reduced and their practical application should be increased. In certain scientific subjects, such as anatomy, physiology, pathology, and bacteriology, some of the demonstrations should from the first be of a clinical nature in the hospital itself. Such an innovation would enormously increase the interest of the student and would enable the teacher to stress the application of his subject and to curb theoretical discussions which were of merely academic interest.

The speaker also thought that a more up-to-date body than the General Medical Council to guide the whole of medical education was necessary. The General Medical Council should contain a much larger proportion of men versed in the needs of the general practitioner, for at present there were only seven men elected by the great body of general practitioners, while of these only two, he believed, had ever engaged in general practice. Dr. Barber considered that the scientific subjects should be taught to a greater extent in their reference to general practice—for example, anatomy should be taught only as it was applicable to the living body. In Edinburgh fuller use might be made of the dispensaries with which this city was well provided to give students some idea of what general practice was like. He believed that if some such changes were made general practice would take its rightful position as one of the highest branches of medicine instead of being regarded, as at present, as a branch for mediocre and unambitious people.

### SOME CRITICISMS ANSWERED

Professor SYDNEY SMITH, dean of the Faculty of Medicine in Edinburgh University, spoke to some extent in reply to criticisms which had been made of the present curriculum. He said that every member of the medical faculty was ready to alter and improve his course as seemed necessary. He considered that the curriculum of Edinburgh University was years ahead of anything that had developed south of the border. The great reduction that had taken place in present-day mortality figures as compared with figures at the beginning of the century was a proof that their study of preventive medicine had been intensive. The maintenance of the health of the individual was stressed right through the curriculum, and the recently established chair in Edinburgh of child life and health was specifically devoted to the problem of the child and of keeping him in health. Speaking of the preliminary scientific subjects, he hoped that in future medical students would spend considerable time on the subjects of chemistry, botany, and physics at school before they came to the University. It had already been proposed in Edinburgh that anatomy and physiology should run together, with an increase in the amount of time given to physiology and a diminution in that given to anatomy, and also that throughout the later stages of the course the clinical applications of physiology and anatomy should be studied in the wards of the hospital. He did not agree that medical students were over-worked, but nevertheless it was intended in Edinburgh to ease the studies of the third year. It was also proposed that the amount of clinical work should be increased by two terms, and that the long summer vacation should be shortened.

The discussion was finally summed up by Dr. CHALMERS WATSON, who said that Sir Francis Fremantle's plea for a definite reorganization of the curriculum strongly commended itself, as well as his suggestion that a progressively minded university should give a pioneer lead at the present time. It was in accordance with tradition that Edinburgh should play that part, for the University had already given much consideration to the subject, and it was gratifying to learn from the dean of the Medical Faculty that changes had already been contemplated to meet the new conditions. It had been said that medicine had come to a new birth, and he would like to observe that if the birth was not to prove a stillbirth it must arise out of an appropriate marriage between what was best in the curative medicine of the past with

what was best in the preventive medicine of the future. Tradition died hard, and the enthusiasm of each teacher for his own special subject was boundless and might require to be curbed. Medicine should be regarded both as a science and an art, and the development which had been foreshadowed by the dean of the Faculty would enhance the students' knowledge of both. Other schools would no doubt follow Edinburgh's lead in this matter. The speaker shared the views already expressed regarding the advisability of reorganizing the controlling body of medical education.

## THE CORONATION HONOURS LIST

An Honours List, issued on the occasion of the Coronation of His Majesty King George VI, was published on May 11 as a Supplement to the *London Gazette* of May 7. The list contained the names of the following members of the medical profession.

*Baron*

The Right Hon. CHRISTOPHER ADDISON, P.C., M.D., F.R.C.S., First Minister of Health, 1919–21, Parliamentary Secretary to the Ministry of Agriculture 1929–30, and Minister of Agriculture 1930–31. For political and public services.

*Baronet*

Sir CUTHBERT SIDNEY WALLACE, K.C.M.G., C.B., D.Sc., M.B., F.R.C.S., President of the Royal College of Surgeons of England.

*K.C.B. (Civil)*

EDWARD MELLANBY, M.D., F.R.C.P., F.R.S., Secretary, Medical Research Council.

*K.C.V.O.*

Sir JOHN ATKINS, K.C.M.G., M.B., F.R.C.S., Physician-in-Ordinary to H.R.H. the Duke of Connaught.

GEORGE FREDERIC STILL, M.D., F.R.C.P., Consulting Physician, Hospital for Sick Children, Great Ormond Street.

*K.B.E. (Military)*

Air Vice-Marshal ALFRED WILLIAM IREDELL, C.B., M.R.C.S., L.R.C.P., Director of Medical Services R.A.F., Honorary Physician to the King.

*K.B.E. (Civil)*

The Honourable JOHN RICHARDS HARRIS, M.D., Minister of Public Instruction and Minister of Public Health, State of Victoria.

*Knighthood*

ARTHUR FREDERICK HURST, D.M., F.R.C.P., Senior Physician to Guy's Hospital.

HAROLD BECKWITH WHITEHOUSE, M.B., M.S., F.R.C.S., Professor of Midwifery and Diseases of Women in the University of Birmingham.

ARTHUR EDWIN HORN, C.M.G., M.D., M.R.C.P., Consulting Physician to the Colonial Office.

*C.B. (Military)*

Surgeon Rear-Admiral GUY LESLIE BUCKERIDGE, O.B.E., M.R.C.S., L.R.C.P., Honorary Surgeon to the King.

Major-General OSBURNE IEVERS, D.S.O., M.B., late R.A.M.C., Honorary Surgeon to the King, Deputy Director of Medical Services, Southern Command.

Major-General HENRY MARRIAN JOSEPH PERRY, O.B.E., late R.A.M.C., Honorary Surgeon to the King, Director and Professor of Pathology, Royal Army Medical College.

Major-General WILLIAM HAYWOOD HAMILTON, C.I.E., C.B.E., D.S.O., F.R.C.S., I.M.S., Honorary Physician to the King, Deputy Director of Medical Services, Northern Command, India.

Air Commodore ALBERT VICTOR JOHN RICHARDSON, O.B.E., M.B., B.Ch., D.P.H., R.A.F., Honorary Surgeon to the King.

*C.B. (Civil)*

JOHN HARRY HEBB, C.B.E., M.B., B.Ch., Director-General of Medical Services, Ministry of Pensions.

*C.M.G.*

ROBERT HENRY HOGG, O.B.E., M.B., President of the New Zealand Branch of the British Medical Association.

*C.I.E.*

Colonel JOHN TAYLOR, D.S.O., M.D., I.M.S., Honorary Surgeon to the Viceroy of India, Director, Central Research Institute, Kasauli.

Lieut.-Colonel CLIVE NEWCOMB, B.Ch., D.M., M.R.C.S., L.R.C.P., F.I.C., F.C.S., I.M.S., Chemical Examiner to the Government of Madras, and Principal, Medical College, Madras.

Lieut.-Colonel RONALD HERBERT CANDY, M.B., B.S., M.R.C.S., L.R.C.P., I.M.S., Civil Surgeon, Poona, Bombay.

ERNEST MUIR, M.D., F.R.C.S.Ed., LL.D., General and Medical Secretary, British Empire Leprosy Relief Association.

*C.B.E. (Military)*

Surgeon Captain WILLIAM BRADBURY, D.S.O., M.B., B.Ch., R.N.

Colonel JOHN HEATLY-SPENCER, O.B.E., M.D., F.R.C.P., late R.A.M.C., Honorary Physician to the King, Professor of Tropical Medicine, Royal Army Medical College and Consulting Physician to the Army.

*C.B.E. (Civil)*

EDGAR LEIGH COLLIS, M.D., M.R.C.P., Emeritus Professor of Preventive Medicine in the University of Wales, Member of the Miners' Welfare Committee.

GEORGE CARTER COSSAR, *M.C.*, L.R.C.P. and S.Ed., L.R.F.P.S.Glas., Founder of the Todhills Farm Colony and the Craigielinn Training Farm for the Training of Boys in Agriculture.

JAMES PERRINS MAJOR, M.D., B.S., Honorary Secretary of the Victorian Branch of the British Medical Association, Honorary Local General Secretary of the 103rd Annual Meeting of the British Medical Association, Melbourne, September, 1935.

PETER SINCLAIR HUNTER, M.B., Municipal Health Officer, Singapore, Straits Settlements.

JAMES LOCHHEAD, O.B.E., M.D., F.R.C.S., Colonial Medical Service, Senior Medical Officer, Gibraltar.

*O.B.E. (Military)*

Surgeon Commander JOHN WYLIE, M.B., Ch.B., R.N.

Surgeon Captain JAMES BRUCE RONALDSON, V.D., M.D., R.N.V.R.

Major DAVID FETTES, M.B., F.R.C.S.Ed., R.A.M.C.

Major FRANK HOLMES, M.B., R.A.M.C.

Captain TREVOR EDWARD PALMER, M.B., I.M.S., late Medical Officer, British Legation Guard, Addis Ababa, Abyssinia.

Wing Commander ALAN FILMER ROOK, M.R.C.P., M.R.C.S., D.P.H., R.A.F.

*O.B.E. (Civil)*

Alderman OWEN WYNNE GRIFFITH, L.R.C.P., L.R.C.S., J.P. Eleven times Mayor of Pwllheli and forty-four years member of the Town Council.

CHARLES RALPH COOKE-TAYLOR, M.R.C.S., L.R.C.P. For political and public services in Dulwich.

DAVID HYND, M.B., Ch.B., Raleigh Fitkin Memorial Hospital, Bremersdorp, Swaziland. For social welfare services.

Major GEORGE MAYNE MOFFATT, L.R.C.P. and S.I., I.M.S., Civil Surgeon, Lashio, Northern Shan States, Burma.

Lieut.-Colonel JOHN RODGER, *M.C.*, M.B., I.M.S., Chief Medical Officer in Baluchistan.

Lieut.-Colonel PAUL HERBERT SHELLEY SMITH, M.B., B.Ch., I.M.S., Superintendent, Central Jail, Haripur (Hazara), North-West Frontier Province.

JOHN MERRILL CRUIKSHANK, M.D., Colonial Medical Service, Chief Medical Officer and Resident Surgeon, Bahamas.

JOHN DANIEL HARMER, M.B., F.R.C.S., Colonial Medical Service, Surgical Specialist, Health Department, Northern Rhodesia.

Mrs. DOROTHY MARY ROBERTS, M.B. For social services in the Straits Settlements.

GEORGE WAUGH SCOTT, M.D. For public services in the Federated Malay States.

*I.S.O.*

HERBERT RENDELL, M.B., C.M., formerly Superintendent of the Tuberculosis Sanatorium, Newfoundland.

*M.B.E. (Military)*

1st Class Assistant Surgeon ARTHUR NORMAN DE MONTE, M.C., Indian Medical Department.

Lieutenant (Senior Assistant Surgeon) HAROLD JAMES CLARKE FLANAGAN. Retired, late Indian Medical Department.

Captain ALISTAIR GORDON DONALD WHYTE, R.A.M.C. For valuable services rendered in the field in connexion with the operations in Palestine during the period April–October, 1936.

*M.B.E. (Civil)*

Miss HARRIETT BIFFIN, M.B., M.S. For charitable and social welfare services in the State of New South Wales.

THOMAS BERTRAM BUTCHER, M.R.C.S., L.R.C.P., Honorary Surgeon Superintendent, Cottage Hospital, Mussoorie, United Provinces.

Major FRANCIS JOSEPH D'ROSE, Indian Medical Department, Civil Surgeon, and Superintendent of the Central Jail at Myaungmya, Burma.

BIRENDRA NATH GHOSH, L.M.S., F.R.F.P.S., Medical Practitioner, Bengal.

BARJOR FRAMJI KHAMBATTA, M.B., B.S., D.P.H., Port Health Officer, Karachi, Sind.

Major JOHN MICHAEL PEREIRA, Indian Medical Department (retired), Superintendent, Patna Medical College Hospital, Bihar.

PERCY WILLIAM BARNDEN, M.R.C.S., L.R.C.P. For social services in Nigeria.

ATUL CHANDRA DUTTA, L.M.S. Lately Medical Officer, Malacca, Straits Settlements.

*Kaisar-i-Hind Medal (First Class)*

JEHANGIR ARDESHIR ANKLESARIA, M.B., B.S., D.P.H., D.T.M., Port Health Officer, Rangoon, Burma.

## ST. JOHN AMBULANCE BRIGADE

### Jubilee Celebrations

The St. John Ambulance Brigade will celebrate its jubilee this year immediately after the Coronation, beginning with a reception at St. John's Gate, London, on May 14. The Brigade was formed in 1887 in order to give members of the St. John Ambulance Association greater opportunities for putting their knowledge of first aid and nursing to practical test, and by its connexion with the Order of St. John of Jerusalem is part of the oldest order of chivalry in the world, having its origin in the eleventh century. The Brigade has now grown to a strength of 101,917 men, women, and cadets in this country and over-seas, from where many will be making long journeys to attend both the jubilee celebrations and the Coronation. Representatives will come from many parts of the British Empire. The Queen, who is Commandant-in-Chief of the Nursing Corps and Divisions, will take part in the jubilee celebrations by reviewing the Brigade in Hyde Park on May 22.

The arrangements, in addition to the reception and the great review, include: May 18, garden party at St. James's Palace, given by the Grand Prior, H.R.H. the Duke of Connaught; May 21, jubilee first-aid competitions at the Great Central Hotel, prizes distributed by H.R.H. Princess Alice; May 23, service at St. Paul's, attended by H.R.H. the Duke of Kent; May 25, investiture at Buckingham Palace by H.M. the King; May 29 to 30, intensive air raid precautions course for over-seas members at Great Central Hotel.

### Surgeons-in-Chief

The first Surgeon-in-Chief was Sir William MacCormac, Bt., P.R.C.S., who was appointed to that post in 1896, though he had been in the St. John movement from the time when the association (which teaches, examines, and certifies lay persons) was born, and joined the Brigade at its origin. Then followed Edmund Owen, F.R.C.S., of St. Mary's Hospital, who was Chairman of Council of the British Medical Association, 1905–10; next Sir William Bennett, F.R.C.S., for fifteen years; then Colonel C. I. Ellis, A.M.S.T. (1931–6). The present Surgeon-in-Chief is Dr. N. Corbet Fletcher of Hampstead, a general practitioner who on his promotion last year had already had twenty years' service with the Brigade, and is credited with several authoritative manuals on first aid and home nursing.

An Argentine Society of the History of Medicine has recently been formed in Buenos Aires under the presidency of Dr. Ramon Pardal, its special purpose being the study of medicine in America.

# Local News

## ENGLAND AND WALES

### Centenary of Liverpool Medical Institution

The programme has now been issued for the centenary celebrations of the Liverpool Medical Institution on Sunday, Monday, and Tuesday, May 30, 31, and June 1. At the cathedral service on Sunday at 3.30 p.m. the preacher will be the Bishop of Glasgow and Galloway, and at 3.45 p.m. members of the Guild of SS. Luke, Cosmas, and Damian will meet at the Catholic Cathedral site for benediction, after which they will join the others for tea at the Medical Institution. At the centenary meeting on Monday at 3.30 p.m. honorary membership is to be conferred upon Sir Cuthbert Wallace, President of the Royal College of Surgeons of England, Sir Norman Walker, President of the General Medical Council, Sir E. Farquhar Buzzard, President of the British Medical Association, Sir Ewen Maclean, President of the British College of Obstetricians and Gynaecologists, Professor W. Fletcher Shaw, President of the Manchester Medical Society, Sir James Barr, Mr. C. Thurstan Holland, and Mr. Frank T. Paul. The new honorary members will be introduced by Professor John Hay, and congratulations will be offered to Dr. Hugh A. Clarke on the attainment of his jubilee of membership. Professor R. E. Kelly will then give his presidential address, entitled "Surgery 100 Years Ago." The centenary dinner will be held at 7.30 at the Adelphi Hotel. On Tuesday at 3.30 p.m. the opening of the Hugh Owen Thomas and Robert Jones Memorial Library of Orthopaedic Surgery will be followed by the Hugh Owen Thomas Memorial Lecture by Mr. W. Rowley Bristow, President of the British Orthopaedic Association. At 9 p.m. the Lord Mayor of Liverpool will give an At Home in the Town Hall, with dancing till midnight.

### University of London Medical Graduates

The annual dinner of the University of London Medical Graduates Society was held on May 6 in the new University buildings in Bloomsbury, Dr. Dorothy Hare presiding over a large number of members and guests. The health of the society and its president was proposed by Mr. H. Lightfoot Eason. In a characteristically witty speech he welcomed Sir StClair Thomson as the "well-known gynaecologist" who had been present at the birth of the society in his house in 1927. Sir StClair, he said, was known not only in England but all over the world, and it was a pleasure to them that he would be present in the Abbey at the Coronation as a representative of the Royal College of Physicians. The University of London Medical Graduates Society had been created for purely social reasons to promote the interests of the faculty of medicine in London. In coupling the name of their president with the toast of "The Society" Mr. Eason said that Dr. Hare was a worthy representative of the society and all that it stood for. Thanking Mr. Eason for the way in which he had proposed the toast, Dr. Hare said that this was a red-letter day in its short history, for they were holding their dinner in the new hall of the University. She would like to thank Colonel Brook and his staff for the efficient way in which the entertainment had been conducted. The society, she continued, owed a great debt to the outgoing secretary, Dr. Louise Livingstone, and to Mr. John Hosford, who would continue in office. She would also like to express their indebtedness to the treasurer, Mr. Philip Mitchiner, and to extend a welcome to Sir Charlton Briscoe, who would shortly be the new president. She was glad to be able to record that this year the society had received official

recognition from the University of London. The society stood for adhesion to the University and cohesion among its members, of whom there were now over 700, including many over-seas. The health of the guests was proposed in a short speech by Sir Charlton Briscoe, and Mr. W. Girling Ball replied.

### New Antitoxin Establishment for London

It is proposed to set up at Queen Mary's Hospital, Carshalton, at a cost of £116,000, a new antitoxin establishment designed and equipped on modern lines. The London County Council has hitherto depended on the laboratories at Belmont, Sutton, which were built thirty years ago, to deal with the preparation of diphtheria antitoxin and of materials used in the diagnosis of diphtheria for the hospitals controlled by the former Metropolitan Asylums Board. Since the Council assumed control the work carried out at Belmont has been extended to the preparation of other products, with the result that although there have been some extensions of the building the accommodation is inadequate. It is expected that the provision of the establishment at Carshalton will assure the County Council of a constant and ample supply of the products now being prepared at Belmont, as well as of others that are being purchased, with the important additional advantages resulting from research which will become possible in new forms of specific and preventive treatment. The space required for the preparation of the products at present issued and those required to meet the anticipated increase in the demands for them is estimated at twice that of the existing laboratory. The Belmont laboratories will be retained for work which can conveniently be carried out there.

## SCOTLAND

### Lectureship in Psychopathology at Aberdeen

Aberdeen University Court, at a special meeting recently, accepted a gift of a capital sum from an anonymous donor for the foundation of a part-time lectureship in psychopathology. It was a condition of the gift that the lecturer should not be an alienist, and that his clinical work be done in the Royal Infirmary. Among other benefactions intimated was a gift of £500 from Lord Glanely to permit research in rheumatism.

### Deaconess Hospital, Edinburgh

At the annual meeting of the Church of Scotland Deaconess Hospital, Edinburgh, Sir John Fraser, professor of clinical surgery in the University, said that this hospital illustrated in its work the beauty of what he might call practical Christianity. Religion and medicine were very fitting partners in life's work, and this was the reason why many members of the medical profession were staunch admirers of the great work done in this hospital. There was evidence now of a growing tendency to accept the principle that the State should make itself responsible for the care and maintenance of the sick. The present was not a time to discuss the ethics of that question. There was much to say in favour of it, but the very thought brought into prominence the privilege of giving voluntarily. Therefore, while there was still time, they should share in the joy of voluntarily supporting hospitals, and aiding in hospital activities by all means in their power. Mr. J. A. S. Millar, chairman of the Hospital Board, recalled that the reopening of the Deaconess Hospital after reconstruction last December had been the last public function performed by the King and Queen as Duke and Duchess of York. The scheme of reconstruction would cost about £42,000, and towards that sum £36,000 had been received.

# Correspondence

## The Oxford University Appeal

SIR,—At a meeting of members of the Oxford Medical Graduates' Club recently held in London to consider how they might best assist the Oxford University Appeal, the opinion was expressed that many medical graduates would like to be associated together in any contribution which they might make towards the appeal. It has therefore been arranged that a special fund will be opened to include the contributions from all medical graduates who may so desire it, the names of individuals being of course retained. It is felt that, in this way, the medical graduates of Oxford will be able more adequately to express their gratitude to their University and their desire to come to her assistance.—We are, etc.,

E. FARQUHAR BUZZARD,
President.
R. C. JEWESBURY,
Hon. Secretary.

May 3.

## Blood Transfusion in Obstetrics

SIR,—I have read Dr. Malcolm D. Black's communication on blood transfusion in obstetrics in the *Journal* for May 1 (p. 903) with some interest, the more so because active efforts, in the shape of the provision of "flying squads" and transfusion services, are being made to deal with serious cases of haemorrhage among women delivered in their own homes. With such efforts directed towards saving women who have had severe haemorrhage at childbirth I am in natural sympathy. Common sense alone would appear to dictate blood transfusion along the lines suggested and in the type of case cited by Dr. Black; but are we doing all we can to avoid the haemorrhages which call for such treatment?

When I was appointed to the Dudley Road Hospital, Birmingham, in 1932, I dealt with eighteen cases of severe post-partum haemorrhage, with collapse, in my first half-year. None of the patients died and none was transfused; all were delivered in the hospital. During the four and a half years since then there have been three cases only among the same class of patient, again without a death. Twenty cases were sent to the hospital following delivery at home during the same period; there were two deaths and one of the patients had a ruptured uterus. The hospital deals with from 1,200 to 1,500 confinements and 600 to 700 abortions a year.

On investigating the eighteen cases that occurred in the first half-year, I found that the whole trouble could be attributed to faulty management of the third stage of labour, which culminated in the loss of the retroplacental haematoma from one edge of the placenta too early, leaving the remainder of the placenta attached. In other words, when the haematoma has been conserved until the whole of the placenta has been hydraulically lifted off, all is well.

Dr. Black advocates transfusion before any attempt is made to deal with the placenta or the products of conception in abortion cases. I have stated (*Journal*, 1935, **1**, 78) that separated placental tissue is, of itself, shock-producing. Mangled or dying tissue anywhere in the body will lower the blood pressure steeply until it is removed. When that is done the patient's pulse shows a constant and welcome recovery in twenty minutes or less, and rectal salines and absolute quiet are then all that

are required. Dr. Black comments on the number of deaths as between the period when there was no proper transfusion service (the average of the five years 1930–4 was 21.4) and the year 1935 when such a service was instituted, and there were sixteen deaths. The smallness of this drop should be noted by everyone in charge of clinics comparable in scope with the Glasgow hospital to which Dr. Black is attached. He has the kind of results that may be obtained in cases of desperate need, however quickly the transfusion is given, or, rather, made available.

While an active supporter of the kind of work that Dr. Black is doing, I feel that there is even more to be done in the way of disseminating knowledge of the real physiology underlying the separation and expulsion of the placenta, from which the management of the third stage of labour follows as a corollary. Further, all perineal lacerations following operative delivery should be immediately sutured, thus avoiding confusion as to the source of the bleeding. If the placenta is not expelled naturally an anaesthetic should be given and the placenta expressed or removed manually. In my own experience covering nine years spent in large maternity hospitals I am convinced that the best time for transfusion to improve the patient's general condition is the fifth or sixth day of the puerperium. With Dr. Black's remarks on placenta praevia I am in full agreement.—I am, etc.,

WENTWORTH TAYLOR, F.R.C.S.I., M.C.O.G.

Birmingham, May 4.

SIR,—Dr. Malcolm Black is to be congratulated on his admirable survey of blood transfusion in obstetrics in the *Journal* of May 1 (p. 903). The experience at Leeds Maternity Hospital confirms that of Dr. Black. The improvement of the maternal results in placenta praevia since blood transfusion has been freely resorted to is striking. Before 1931 the annual number of transfusions recorded never reached ten; from 1922 to 1930 260 cases of placenta praevia were treated in the hospital and twenty-eight of these patients died (10.8 per cent.). In 1931 there were eleven transfusions, in 1932 and 1933 eighteen each, and in 1934 twenty-five; from 1931 to 1934 177 cases of placenta praevia were treated and four of these patients died (2.3 per cent.). Figures later than 1934 are not available. Since 1931 the Leeds Blood Transfusion Service has kindly provided most of the donors. The only alterations in the obstetric treatment of placenta praevia since 1930 have been the introduction in 1932 of Willett's forceps as the method of choice and an increase in the incidence of Caesarean section. No doubt Willett's forceps should share with blood transfusion the credit for the improved results.

I am glad to see that Dr. Black stresses the value of blood transfusion in the patient's home in certain cases. I am convinced that the transfer to hospital kills some patients who are in a state of collapse from haemorrhage and brings others near to death. The "flying squad" advocated and introduced by Professor Farquhar Murray at Newcastle can save many lives, and has been strongly recommended in the recent report on maternal mortality published by the Ministry of Health.

I think the best form of transfusion service is one whose members are available to give blood in any emergency, whether medical, surgical, or obstetric. I do not know what is done in Glasgow when donors are required for, say, surgical cases, but it would surely be uneconomical to have two services, with two office staffs, and two sets of the necessary stationery in one city. The Leeds service was modified from those of London and Birmingham. The hospitals pay the service a small sum for the donors used, and private patients each pay a fee of five guineas. The fees are used to meet service expenses, as the donors as a body have refused to accept any remuneration for what they give.—I am, etc.,

Leeds, May 3. ANDREW M. CLAYE.

## Treatment of Tetanus

SIR,—I have read with great interest Dr. Yodh's paper (*Journal*, April 24, p. 855) on the treatment of tetanus, in which he has published further results with repeated doses of antitoxin given by the cisternal combined with other routes. My own results in a small series of thirty consecutive cases treated almost entirely by one single large dose of antitoxin (usually 200,000 international units) given intravenously are perhaps of sufficient interest to quote. Out of thirty patients, seventeen recovered and thirteen died, a mortality rate of 43.3 per cent. (Dr. Yodh: 438 cases, mortality 50.6 per cent.). Five of these cases were extremely severe and the patient died within twenty-four hours of admission; three others were severe cases in men over 60 whose general physique gave no chance of recovery from tetanus. If these eight cases are excluded then there was recovery in seventeen out of twenty-two, a mortality rate of 22.7 per cent. It should be added that however much earlier these eight cases had come under treatment nothing could have saved them. In my experience this applies in most cases in which the patients die within twenty-four hours of admission, so that their exclusion is liable to give a false idea of the mortality rate. In my series there were no cases of purely local tetanus.

Dr. Yodh quotes me as saying that he (Dr. Yodh), in his previous paper (*British Medical Journal*, 1932, **2**, 589) did not give the incubation periods. My exact words were: "but does not give exact details of incubation periods" (*Quart. J. Med.*, New Series, **4**, 298). Dr. Yodh classified his cases into groups with incubation periods of one to five, six to ten, and eleven or more days. My point is that in assessing prognosis the exact incubation period and, even more important, the exact period of onset are of the greatest value. The prognosis in a series of cases with incubation periods of six or seven days is much worse than in a series with incubation periods of nine or ten days. The same applies to a period of onset of two days as compared with one of three.

In attempting to compare the results of two methods of treatment of tetanus, it is most important to take two series of cases in which the incubation periods and periods of onset are as near as possible identical, which are as similar as possible in other respects, and in which, apart from tetanus, the patients are physically fit. I believe that a very careful study of smaller groups of patients on these lines would yield information of considerable value. Tetanus is such a variable disease that unless this method of control is used the results obtained in different series of cases are bound to be conflicting.—I am, etc.,

Cambridge, May 5. LESLIE COLE.

## Rectal Injuries from an Enema Nozzle

SIR,—Mr. Walter W. Galbraith's paper on rectal injuries in the *Journal* of April 24 (p. 859) justifies the following records.

CASE I

A healthy single woman in her forties, with a huge ovarian cyst, complained only of her abdominal enlargement and the playful taunts of her friends. The operation was timed for 10 a.m., but the matron of the home told me that the patient had complained of rectal pain following the adminis-

tration of an enema the previous evening, and suggested postponement of the operation to allow of the possible after-treatment.

On examination a small spot of redness, not more than a sixpence in circumference, was found at the edge of the anus. It suggested an inflamed pile, and I agreed to postpone the operation. At 6 p.m. on the same evening I was horrified to find a raised erysipelatous rash extending all over the buttocks and perineum, and up to the small of the back and well down her thighs. Over the perineal region there were black gangrenous streaks. The patient was removed to the isolation hospital, where prompt surgical treatment involving extensive incisions did not prevent gangrene and sloughing of the rectum and perirectal tissues.

Some three months later she again came under my care, and I found a funnel-shaped, somewhat wide opening leading up from the perineal area to the end of the rectal tube some three inches higher up. Local plastic repair was out of the question. I removed the ovarian cyst, and was astonished to find no evidence of any inflammatory reaction in the floor of the pouch of Douglas, with which the lower pole of the cyst was in contact. A colostomy was performed later.

CASE II

This patient was a "maternity hospital case," and had a laceration involving the perineum and rectum. It was repaired. She complained of severe pain following the administration of an enema. The subsequent history was one of cellulitis, sloughing, septicaemia, pyaemia, and death. It was generally believed that the nozzle of the enema had either perforated the rectal wall or had in some way penetrated a stitched laceration.

These two cases have convinced me that even in expert hands the rigid nozzle is inadvisable, and in the hands of probationers and untrained women positively dangerous. I always insist that enemas are given by means of either a catheter or a rectal tube; the pliability of the rubber will reduce to the minimum the risks of the procedure. Mr. Galbraith has called attention to a most important matter. I share his abhorrence of the rigid nozzle of the enema syringe.—I am, etc.,

Newcastle-upon-Tyne, May 3. FARQUHAR MURRAY.

## Cancer of the Breast

SIR,—In the *Journal* of February 6 certain questions were put forward by Dr. Gilbert Scott bearing on cancer of the breast. These appear to me very much to the point and worthy of consideration. Each week I have been hoping that someone more able than myself might attempt to supply some of the answers; instead there has been an exchange of personalities.

The answer to Dr. Scott's first conundrum, whether the therapeutical results of radium are sufficiently satisfactory to justify the expenditure of large sums of money in creating an apparatus that will produce *x* rays of the same wave-length as that of radium, must be in the negative. For it seems to me that even if an agent was found which was capable of completely destroying every atom of the primary growth we should be no nearer to a cure than were the Egyptians in 2000 B.C. The reason is contained in question four, in which Dr. Scott says, "Metastases do all the killing." This unfortunately is only too true, and but little progress will be made in cancer research unless this obvious fact is taken into consideration. It would seem that the presence of a primary lesion only indicates that the patient is cancerous—analogous to the primary chancre in syphilis. The removal or destruction of the chancre alone, however complete and satisfactory, does not prevent the formation of a gumma at a later stage.

Dr. Scott asks why the word metastasis is but seldom mentioned in discussions on cancer, and the recent meeting of the British Empire Cancer Campaign was no exception. I think the answer must be because there is no known means of prevention. If this is so surely we are not justified in talking about a cure for cancer. Research workers might concentrate some of their energy on the solving of this problem. If, eventually, some means of preventing the formation of metastases is discovered, it is quite probable that the primary lesion will look after itself. If the principle of deep *x*-ray therapy is as stated in the second question, then clearly it can be of no real value in prophylactic work. It is rather like putting down an intense barrage here and there, not having the remotest idea where the enemy is hidden. Cut off their food supply or poison their water, their position and strength will then be of little consequence.

Question three deals with the value of pre-operative irradiation. Obviously if post-operative methods of irradiation are really reliable, pre-operative irradiation must be the correct procedure. Question five asks whether there is any evidence that secondary deposits are less likely to occur after the destruction of the growth by radium or *x* rays than after removal by operation. That is an important point, but I do not know the answer.

Finally, there can surely be no doubt of the palliative value of judicious doses of radium and *x* rays in cancer. I can also deplore the tragic results of well-meaning efforts to cure cancer by irradiation in unsuitable cases. The medical man's motto should not be forgotten: "Primum non nocere."—I am, etc.,

JOHN E. RYAN, M.B., B.S., F.R.C.S.

London, W.1, May 5.

## Intraperitoneal Haemorrhage from a Graafian Follicle

SIR,—Dr. Cresswell Davis has seen fit to state (*Journal*, April 24, p. 889) that of the two cases of ovarian haemorrhage which I reported only the second had its origin in a ruptured lutein cyst. If he had read my letter (*Journal*, March 6, p. 527) he could not have failed to notice that in both cases there was histological evidence that this was the source of the bleeding. His artless assertion that "most of these cases appear to be of haemorrhage from a Graafian follicle" receives no support from his own case, in which no tissue was taken for "section."—I am, etc.,

Birmingham, May 6. J. C. LEEDHAM-GREEN.

## Water Dropwort Poisoning

SIR,—On Easter Monday, while visiting in the country, I knocked at a cottage door to inquire my way, and was confronted with a rather anxious mother holding a small girl who was having a convulsion.

I put the child on a sofa, and she had five convulsions in rapid succession, becoming blue in the face, frothy at the mouth, and with shallow respiration. Her elder sister was sent to fetch my bag from the car, and she came back and said, "Mother, Vivian is on his back in the garden having fits." Now I had two children who were vomiting and having convulsions, the cause of which was obscure, and by this time I too was becoming anxious, as the boy, aged 5½, was unconscious, grey in the face, and with his pulse imperceptible at the wrist. In view of his grave condition I injected 1 c.cm. of coramine, and later he showed signs of reviving. Both children seemed to have got over the serious effects next day, but their muscles were still twitching.

I discovered that both children had eaten the leaves and root of a plant they found in the river bed, the *Oenanthe crocata* or water dropwort, an exceedingly com-

non plant in this district. Cushny's *Pharmacology and Therapeutics* gives a good description of the human poisoning, which the symptoms of the children closely followed. The poisonous principle is oenanthotoxin, which produces symptoms similar to those caused by picrotoxin. In view of the coincidence and unusual nature of the cases I think them worth recording.—I am, etc.,

Cowbridge, May 6. W. E. THOMAS.

## Prevention of Constipation

SIR,—Dr. E. M. Dimock's article on the prevention of constipation by bran (*Journal*, May 1, p. 906) causes me to point out what may not be generally known in these motoring days, that it is customary for horses on dry food during the hunting season to have a bran mash every Saturday night.—I am, etc.,

Rotherham, May 3. G. E. MOULD.

## Technique of Ionization

SIR,—In his review (*Journal*, May 1, p. 919) of Dr. A. R. Hollender's *Physical Therapeutic Methods in Otolaryngology*, your contributor may convey a wrong impression when he says, with reference to the ionization treatment of vasomotor rhinitis, that "it is emphasized that benefit is obtained at the expense of permanent destruction of the ciliated epithelium of the nose, and this is clearly demonstrated in a series of photomicrographs." May I point out:

1. That the technique of ionization described by Dr. Hollender (pp. 73–175) involves the passage of a current of 15 mA for ten minutes to *one* side of the nose at a time. As I pointed out in my book, *Hay Fever* (Oxford University Press), a current density of this order will produce diffuse destruction and fibrosis, whereas a current of 3 mA to *both* sides of the nose simultaneously, with proper attention to the technique of packing, will not.

2. That the photomicrograph of the "control" in Dr. Hollender's book shows "cilia in some areas and absent in others," and that it is not, in my opinion, a representative picture of an established vasomotor rhinitis, since "the stroma is slightly infiltrated by small and large lymphocytes and a few plasma cells, and the mucous glands have a normal appearance." The tissue is not oedematous, and eosinophil cells are not present.

3. That numerous workers, among others Hansel, Coates and Ersner, and Weille, have shown that cell metaplasia occurs in true vasomotor rhinitis *before* any treatment by ionization, and that one of the most characteristic features of allergic nasal mucosa is the appearance of stratified squamous epithelium in place of the columnar ciliated type. My own (published) histological observations confirm this. Now stratified epithelium will not grow cilia, and it is therefore absurd to condemn ionization because cilia are not found in sections taken afterwards.

Furthermore, since the casual reader is likely to be misled by your reviewer's summary of Dr. Hollender's experience with ionization in vasomotor rhinitis, I must point out that Dr. Hollender states "the enthusiasm with which ionization has been pursued as a remedy for seasonal hay fever seems thoroughly justified." For my part, however, I cannot agree that the American technique, which involves the use of excessive currents, is the best method of applying this treatment.—I am, etc.,

London, W.1, April 30. CLIVE SHIELDS.

*** The Reviewer writes: The position of ionization for vasomotor rhinitis must be very precarious if it is unable to endure the mildest criticism. Dr. Shields resorts to the ancient sophistry of violently rebutting a charge which has not been made. Ionization has been condemned neither by Dr. Hollender nor by your reviewer.

## Birching of Children

SIR,—It is easy to agree with the general conclusion of your leading article on the whipping of child delinquents, but difficult to subscribe to the extravagant statements of some of your correspondents. For instance, it is asserted by one that all who advocate the whipping of children are actuated by sadistic impulses. One is left with an uncomfortable feeling that a very large number of parents, teachers, and others in charge of children a generation ago, probably a majority of the nation, were sadists, judged by this criterion! Further, what is a poor remedy in general may be excellent on occasion. While no one would advocate corporal punishment as suitable for all children or all delinquencies, years of close study of school children have forced on me the fact that some boys can be taught and benefited by such punishment, while many cannot.

Most of us will agree that to birch a little boy of 8 is, if not barbarous, certainly futile. But six strokes to a healthy boy of 14 is not a terribly severe ordeal, and there exist many who would think it an efficacious way of dealing with some delinquents of 14 to 18 years. Lastly, apart from the victim, there is little doubt of its success as a deterrent to others. The child who is put on probation too often regards it as having been "let off," and comes back to his fellows to boast that he has been "down to the court" and has come back scathless. The knowledge that such punishment was even occasionally employed by the children's court would keep many a child from its first delinquency.

Magistrates have full power of inquiry and a wide discretion, and the fact that out of many thousands of cases in the juvenile courts in 1935 only 200 were ordered a whipping proves that their discretion has not been abused.—I am, etc.,

Hastings, May 8. E. C. DOWNER.

## "What is Osteopathy?"

SIR,—In the *Journal* of April 24 Sir Walter Langdon-Brown states that it must be difficult for me "to try to be a modernist and a fundamentalist at the same time." The fundamental which is under discussion is that normal function is dependent on structural integrity; no more, no less. I maintain, I think with justification, that it is easier to be, in this respect, a fundamentalist and yet a modernist than it was, say, thirty years ago. It is still easier now than ten years ago, and it is easier this year than last.

Sir Morton Smart states: "To maintain a tissue in a healthy state regular normal fulfilment of the functions of the arterial, venous, and lymphatic circulations is essential, and this is even more so when a tissue has been injured." Much fun has been poked by Drs. Hill and Clegg at the statement of Still's that the rule of the artery is supreme, but is the above-mentioned statement so far removed from the following definition of osteopathy?

"Osteopathy is a manual method of healing. It is based on the fact that abnormalities in the human framework ultimately cause disease by interfering with the blood and nerve supply to the various tissues and organs of the body. Further, by obstructing the vessels which carry away waste products, these abnormalities allow other factors in ill-health to exert their influence unduly."

Surely it is easier to substantiate that dictum now than it was when Langdon-Brown brought out the first edition of *Physiological Principles in Treatment*. I have compared the recent most excellent seventh edition of this unique work with the earliest edition in my possession, the third. The comparison is interesting, and I would recommend those who are concerned with this argument to do the same.

It may be of interest to your readers to know what the reactions are in osteopathic circles to the book *What is Osteopathy?* by two junior officials of the British Medical Association. This book will be answered in no uncertain terms, and perhaps it would have been wiser if the Association had rested content with its recent legislative victory. It must be stated at once that no charge of deliberate unfairness can be brought against the authors. The book is written for the public, whose sense of fair play it would be unwise to offend. Yet one gathers the impression that the passages from the report of the Select Committee of the House of Lords, appointed to consider the Registration and Regulation of Osteopaths Bill, are selected not to show what osteopathy is but to indicate the limitations of that system of practice.

H. G. Wells's preface is inconsistent and valueless. Is there anything in such books as *First Men in the Moon* and *Food of the Gods* that would indicate that the opinion of their author is of any more value than the readers'? It is certainly of less value than mine. It might be thought that such a visionary as H. G. Wells would be found arguing on the side of the osteopaths. We would rather have him where he is for all his excursions into science and in fantasies of seeming actualities. Yet his natural inclinations would have led him to support the osteopaths had he not so controlled the natural resentments which he confesses to own. On the one hand he states that osteopathy considered "as anything more than the manipulative side of surgery is impudent balderdash," and, on the other hand, he issues a warning to medical men and urges the medical profession "to take into itself as speedily as possible whatever good there is in manipulative healing." Few would argue that manipulative surgery is as comprehensive as manipulative healing. Osteopaths are manipulative healers, and there is nothing in manipulative surgery that they do not use when the occasion arises. George Bernard Shaw's attitude is indicated in a typical Shavianism: "No osteopath wants to be a doctor, but every doctor should be an osteopath." Shall we leave it at that and call it all square?

Fifty pages of the book are given over to the ridicule of Still. He laid himself open to it. None of us belittle the discovery by Harvey of the circulation of the blood because some of his other works were not up to the standard of that epoch-making discovery. Though Harvey left no immature compositions, and, as it has been said, "no juvenalia over which we may smile indulgently," nevertheless he did learn from Fabricius, as he leant over the railing in the windowless amphitheatre at Padua, that the venal valves are always directed toward the heart.

The most misleading chapter in the whole book is the chapter on "Osteopathic Education in America." It is either deliberately misleading or inexcusably out of date. The osteopathic profession is young, the first college being opened in 1892. To get a comparable stage in the development of medical education one would have to go back to the days before the passing of the Medical Act of 1858. The regular course for graduation as Doctor of Osteopathy in any one of the six colleges approved by the American Osteopathic Association consists of four years of nine months each. No reference is made to the fact that the College of Osteopathic Physicians and Surgeons, Los Angeles, and the Philadelphia College of Osteopathy require two years of medical work in an approved college before beginning the osteopathic course. One would not gather from this book that there are at present ten thousand fully qualified practising osteopaths, and that in the United States there is one osteopath to every twenty doctors of medicine, and one per 17,000 of the population. There is no word of the fact that there are more than two thousand students at present enrolled in the six approved American colleges.

The slogan of the book seems to be: "Get your name on to the *Medical Register*." Such, at any rate, is the advice given to the British osteopath in search of State registration. It may be that the medical opposition in this country is so strong that that is the only practical course open; it may be that the general public would so wish it. Be that as it may, the qualified osteopaths in this country have already taken steps to carry out all the recommendations of the Select Committee of the House of Lords.

There are seven members of the British Osteopathic Association whose names appear on the *Medical Register*. The question might be asked: Why did Dr. Hill or Dr. Clegg not approach one of these gentlemen. Had they done so they would have been able to give a truer answer to the question, "What is osteopathy?"

Yet there is a glimmer of hope, for the final sentence of the book is: "If it is found that osteopathic manipulation has something which medical manipulation has not, then this something else will have to be included in the therapeutic equipment of the practitioner of medicine." The warning of Wells has been taken to heart.—I am, etc.,

Edinburgh, April 30. W. KELMAN MACDONALD.

*** In the preface to their book, *What is Osteopathy?* Dr. Hill and Dr. Clegg state: "We would point out that the views expressed in this book are our own, and not necessarily those of the Association to which we belong,"—ED., *B.M.J.*

## Research in Mental Hospitals

SIR,—As an assistant medical officer in the L.C.C. Mental Hospital Service, may I endorse the letter headed "Research in Mental Hospitals" (*Journal*, May 1, p. 942) by emphasizing the present understaffing in these hospitals. The average A.M.O. has over 500 patients of all types under his care, and it is not surprising that many doctors who enter the service with considerable enthusiasm and interest find that after a year of routine physical and mental examination and treatment of ordinary medical and surgical diseases they no longer have the time or inclination to carry out individual and psychological treatment of their patients. It has been said that the mental hospital doctor does little work and should have plenty of time to treat his patients. If he attempts to do this properly the magnitude of his task so appals him that he gives up his ideal of psychological treatment—providing he has had this ideal—and contents himself with the minimum of routine work, "mental" and "physical" notes, and records of casualties, etc.

Asylums in the past cared for their patients, but hardly thought of actively trying to improve their mental condition. Now it is realized that a great deal can be done by individual psychotherapeutic measures, but these take time. May I indicate the problem with reference to my own work. I have 500 patients in my wards, new admissions come in a slow but steady stream to replace those who die or are discharged. If I did no routine or administrative work, but confined myself to psychotherapy for fifty hours a week I could give each of my patients less than a minute a day!

Never has psychiatry presented so many obvious fields for research as at the present time. Research workers are needed and should be encouraged, but until the number of patients under the care of each medical officer has been considerably reduced little treatment and no research can be usefully undertaken.—I am, etc.,

May 1. "A.M.O."

# Obituary

## H. P. FAIRLIE, M.D.

Anaesthetist, Western Infirmary, and Royal Hospital for Sick Children, Glasgow

We regret to record the death of Dr. Harry Prescot Fairlie, the well-known Glasgow anaesthetist. He studied medicine at the University of Glasgow and the London Hospital, and graduated M.B., Ch.B.Glas. in 1905, proceeding to the M.D., with commendation, in 1912. Dr. Fairlie was honorary secretary of the Section of Anaesthetics at the Annual Meeting of the British Medical Association in Glasgow in 1922, vice-president of the same Section at Manchester in 1929, and president at Eastbourne in 1931. He was also president of the Section of Anaesthetics of the Royal Society of Medicine in 1903–4, and at the time of his death was still a member of the council of the Association of Anaesthetists and of the editorial board of the *British Journal of Anaesthesia*. He wrote many papers on his specialty, and collaborated with Dr. J. S. Ross of Liverpool in the well-known *Handbook of Anaesthetics*, which reached its third edition in 1929.

We are indebted to the Editors of the *Glasgow Medical Journal* for permission to print the following extracts from an appreciation by Professor Samuel J. Cameron:

By the death of Harry Fairlie the medical profession in the West of Scotland lost one of its most distinguished members. Although his death was not unexpected it was regretted by all who knew him, for it is granted to few to be the subject of such universal respect. My association with Fairlie covered a long period, as I first met him when I was a demonstrator of anatomy in the University of Glasgow in the year 1902. Fairlie was a member of the class, and I was attracted to the youth by his eagerness to acquire knowledge and by his modest demeanour, characteristics which persisted throughout his professional career. The friendship formed then continued to the end of his life, and during that time I have never heard Fairlie make an ungenerous remark. It may not be generally known that his professional life might have been passed elsewhere, for soon after he started practice he was strongly tempted to apply for an anaesthetist's post at Dundee. When he consulted me I urged him to remain in Glasgow, as work would inevitably come with the years. This forecast proved accurate, for there came a time when his engagements were so numerous that one had to arrange operations for certain days if his services were to be secured. It is superfluous to refer to his skill as an anaesthetist; his ability was recognized by all who had the privilege to work with him. He was ever alert to test any innovation in his specialty, and he possessed an unerring instinct for quickly assessing the value of new methods. During the thirty-odd years I was associated with him he had only one anaesthetic death in my practice. This occurred when he had many years' experience in the administration of anaesthetics, but such was the natural modesty of the man that the event not only gave him great distress, but caused him to consider if he was adequately equipped for the specialty which he practised. It did not seem to impress him that so many members of his profession requisitioned his services for themselves or members of their families, nor was he the least elated when he was elected president of the Anaesthetic Section of the Royal Society of Medicine. For some years he was anaesthetist of the Royal Infirmary, but later he joined the staff of the Western Infirmary, with which hospital he was associated until his death. He contributed many valuable articles to the literature of anaesthesia, and he reissued Stuart Ross's textbook on the same subject.

Apart from his profession he had many interests. Classical music gave him great pleasure, and so he regularly attended the concerts of the Scottish Orchestra. Whenever he could secure a few hours of freedom he would motor into the country so that he might enjoy a walk among the hills. He was greatly interested in bird life: he seldom returned from a fishing expedition (another favourite pastime) without having made observations relating to the arrival or behaviour of some of his feathered friends. A memory of Fairlie would be incomplete without a reference to the circumstance that his actions were governed by profound religious convictions. Throughout a long and painful illness his faith sustained him. Never did he question his lot, his sole concern being for the welfare of his family, to whom he was devoted.

To all who came in contact with Fairlie he will be remembered not merely as a perfect anaesthetist, but as a quiet and heroic little figure who adorned his profession by the sterling qualities of his character.

S. J. C.

## BENNETT MAY, C.B.E., F.R.C.S.

Consulting Surgeon, Queen's Hospital, Birmingham

Emeritus Professor Bennett May, who died on May 3, was the senior member of the medical profession in Birmingham, and was in his time one of the leaders in surgery in the Midland counties. Bennett May was born ninety-two years ago at Farnham in Surrey, and entered the Sydenham College School of Medicine in Birmingham in 1864, Sydenham College being the medical school attached to the Birmingham General Hospital. He became a Fellow of the Royal College of Surgeons of England in 1876, and was appointed resident surgical officer at the General Hospital. For a time after that he was assistant to Oliver Pemberton in his private practice. In 1880 he was appointed casualty surgeon at the Queen's Hospital, and in 1881 became honorary surgeon there. He resigned his active association with the hospital in 1906, when he was appointed consulting surgeon. From 1887 to 1909 May was professor of surgery in the Birmingham Medical School. For many years he had been an active member of the British Medical Association, having served on the council of the old Birmingham and Midland Counties Branch, of which he was president in 1899, and on the Birmingham Branch Council. At the Annual Meeting in Belfast in 1884 he was secretary of the Section of Surgery, and was a vice-president of the same section at Birmingham in 1890.

Bennett May practised surgery before the advent of the extreme specialism which we find to-day. His interest in surgery was wide and his work was the engrossing factor in his life. If one were asked to say what were the characteristics of May as a surgeon one would answer that they were his diagnostic ability, his extreme care, and his meticulous accuracy. As a teacher May was not impressive; he thought aloud too much; but as a surgeon to intelligent students May was supreme. He taught by the excellence of his methods rather than by word of mouth. During his period of active work at the Queen's Hospital he had as his colleague that very exceptional man Jordan Lloyd. To the writer it was always interesting to watch the work of these two men, who were so different in their methods and in their personal characteristics.

Lloyd—brilliant, original, swift in making his diagnosis and swift in operating; Bennett May—not what one would call original or brilliant, but extraordinarily thorough, painstaking, and careful. These two men by such different paths attained the same object—namely, results in their work, the excellence of which in that day could not be surpassed.

To strike a more personal note, May was a man much beloved by all those who knew him well. He was kind and generous; he had no malice; he spared no pains to help the young man who had surgical ambitions. He had many foibles and peculiarities: absolutely clean and careful in his surgery, yet he never would admit that sepsis was due to organisms. He decried the usefulness of all such aids as the microscope and clinical chemistry, but the results which May obtained would stand investigation in any epoch. They showed what a man of character and ability could do without extraneous help. The force of May's language when he was expressing his opinions on people or on surgery often made his hearers smile, but never lessened their affection and respect for a very remarkable man.

The later years of Bennett May's life were clouded by illness, and his colleagues saw little of him. He was, in a way, a man of the past, but his death reminds us of the work of one who advanced surgery and who set an example in his efforts to attain excellence in his work that has been an inspiring force to all of us who were privileged to watch his surgical practice.

L. G.

The death of Dr. JAMES CARRUTHERS occurred unexpectedly on April 29, at his residence, Hawthornlea, Uddingston. Born at Newarthill over 65 years ago, and educated at St. John's School, Hamilton, he entered Glasgow University in the late 'eighties, and after graduating M.A. and M.B., Ch.B. embarked on a career in general practice. After a voyage as a ship surgeon to Rangoon he became assistant at Kilsyth, and later for five years at Bothwell, where he gained an extensive experience of general practice under the late Dr. William Grant Macpherson. In 1904 he entered into partnership with Dr. Thomson of Uddingston, and his life's work has been associated with that district. Dr. Carruthers was for many years public assistance medical officer, and was a justice of the peace for the county of Lanark. His extensive practice did not permit him to take a large share in public affairs. He was deeply interested in general literature, and was the proud possessor of many first editions. He was very conscientious and painstaking in his work, and was deservedly held in high regard by the community which he had faithfully served for almost forty years. The interment took place on May 1, and was attended by a large and representative company. He is survived by his widow and two daughters.

The death occurred at a nursing home on May 4 of WALTER LEIGH MACKINNON GOLDIE, O.B.E., F.R.C.S., medical officer of health for Leamington Spa. Goldie was born at Simla on June 6, 1879, was educated at Charterhouse and intended, like his brother, for the Army; he passed for Sandhurst, but defective eyesight prevented his following that profession. He then proceeded to the University of Edinburgh, and afterwards to St. Mary's Hospital. He qualified M.R.C.S., L.R.C.P. in 1903, obtaining the F.R.C.S.Eng. in 1906 and the D.P.H. in 1910. After various clinical appointments in London, at St. Mary's Hospital, Great Ormond Street Hospital, and Mount Vernon, Goldie joined the Colonial Service, and was in East Africa for three years. Severe malaria prevented his return for a further period of duty, and he applied for and was appointed assistant medical officer of health and tuberculosis officer for the city of Norwich. On the outbreak of war he joined the Navy, and continued in the Service till 1919. Practically all this time was spent at sea, and he received the O.B.E. (military). My first meeting with Goldie (writes H. G. W.) was on his appointment as medical officer of health and school medical officer for Leamington Spa in 1920, and the friendship formed then has, I am glad to say, continued and increased during the years which have since elapsed. Professionally Goldie was a man of wide experience and ripe judgement, and his powers of observation were the envy of many of us. His long experience in the diagnosis of infectious disease was always at the disposal of colleagues, and his conclusions were expressed with a decisiveness, not to say forcefulness, which was characteristic of him. Beneath a somewhat reserved manner he had a great liking and understanding of young people, and children especially seemed to discover this at once. To see his manner of dealing with them at his hospital or infant welfare centre was a revelation of kindness and understanding. In the untimely death of Goldie Leamington Spa has lost a devoted servant, medicine a worthy exponent, and his friends one whom it will be impossible to replace.

# Universities and Colleges

## UNIVERSITY OF OXFORD

The Board of the Faculty of Medicine has elected the Hon. Mrs. M. A. Jennings, M.A., B.M., of Lady Margaret Hall to the Schorstein Research Fellowship.

## UNIVERSITY OF CAMBRIDGE

The Board of Research Studies has approved C. C. Okell, M.A., M.B., B.Chir., for the degree of Doctor of Science.

The title of the degree of M.B. was conferred during the month of April upon G. M. Brown, C. J. Ormerod, and E. L. Willis of Girton College.

## UNIVERSITY OF LONDON

At a meeting of the University Court held on May 5, with the chairman (Lord Macmillan) presiding, two generous gifts to incorporated colleges were gratefully accepted—namely, two thousand £1 preference shares in the firm of Messrs. H. K. Lewis and Co., given to University College by Mr. H. L. Jackson, governing director of the firm; and valuable scientific equipment for research presented to King's College by the Halley Stewart Trust.

## ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. Edwin Bramwell will deliver the Croonian Lectures on "Clinical Reflections upon Muscles, Movements, and the Motor Path," at the College, Pall Mall East, S.W., at 5 p.m. on May 25 and 27, and June 1.

At the meeting of the College held on April 29 licences to practise were granted to the following candidates:

E. W. O. Adkins, W. C. Aman, M. S. Ambrose, E. F. Aubert, W. C. Baird, T. M. Banham, R. O. Barber, P. F. Barwood, J. G. Berry, W. D. Benyon, S. L. Biswas, R. G. Blackledge, J. Bleakley, G. Bourne, Agnes Y. Bowie, I. G. Braddon, R. H. F. Brain, J. H. Briscoe-Smith, A. E. W. Brooker, K. C. Brown, R. S. Bunny, P. J. Burke, J. H. Burkinshaw, C. S. Cane, C. A. G. Cato, H. W. Chadfield, A. Chambers, L. R. Chaperon, Norah H. C. Clarke, O. W. W. Clarke, May D. C. Clifford, N. F. Coghill, A. Cohen, S. M. Cohen, J. C. A. L. Colenbrander, D. G. Cracknell, F. M. Crawshaw, N. C. Creighton, J. A. Currie, J. B. Cuthbert, Mary D. Daley, A. J. Dalzell-Ward, J. B. Dancer, S. B. Darbishire, A. R. Darlow, C. M. Dickins, Cecile R. Doniger, V. Drosso, Katherine W. Dunn-Pattison, A. E. H. Eades, J. D. Ebsworth, Violet E. Ellam, M. El-Said M. El-Shanawany, G. E. Ennis, P. G. L. Essex-Lopresti, Kathleen J. Evers, G. A. Fairlie-Clarke, Rachel D. Fidler, R. D. Flintan, G. A. Fowler, Audrey U. Fraser, R. T. R. Freshwater, H. W. C. Fuller, E. Garland-Collins, S. Garnjana-Goonchorn, R. G. Gibson, D. S. Gideon, J. C. Gilson, Dorothy M. Gladwell, M. Glick, E. G. Godwin, B. H. Goodrich, C. W. C. Gough, G. W. V. Grieg, A. C. Grey, A. Griffiths, G. L. Gryspeerdt, J. A. Guest, D. V. Hague, H. Haigh, S. G. Hamilton, H. E. W. Hardenbergh, D. W. T. Harris, R. W. H.-G. Harris, G. F. C. Hawkins, M. J. McK. Heap, S. H. Heard, J. A. Herd, A. J. Heriot, J. Herman, P. S. A. Heyworth, A. P. Hick, K. R. Hill, G. B. Hollings, J. N. Horne, N. C. Horne, J. G. Humble, Sybil M. Humphreys, K. K. Hussain, D. L. Isaac, D. N.

Jackman, G. James, N. E. James, D. Jefferiss, S. T. H. Jenkins, W. H. R. Jeremy, J. G. Jesson, A. W. Johnson, G. M. Johnson, J. S. Joly, D. W. G. Jones, J. D. Jones, R. A. Jones, O. Jordan, P. T. Joseph, N. Jungalwalla, L. C. Kalra, B. K. Kapur, J. Kastelian, J. H. H. Keall, Gladys E. Keith, P. M. Kelly, G. M. Kerr, P. Kidd, J. R. Kilpatrick, E. J. Lace, H. B. Lal, E. V. Lambert, I. P. Lassman, N. G. Latey, J. M. Lea, A. R. Leask, A. R. Lee, I. Libman, A. E. Loden, Christia F. Lucas, G. L. St. A. McClosky, T. O. McKane, M. E. Mankin, A. J. Martin, D. Matthews, MaungE, R. McK. Miller, D. Moss, S. N. Mukherjee, Winifred F. G. Murray, B. Mushin, R. H. Neeve, Elizabeth A. Nettell, C. P. Nicholas, M. P. Nightingale, A. J. Nimmo, W. A. Owen, L. B. Paling, E. A. Pask, R. W. J. Patterson, Constance E. Peaker, C. C. S. Pike, C. S. Pitt, G. E. J. Porter, H. L. Porter, H. C. Price, S. H. Raza, J. A. Rhind, G. R. Richards, I. D. Riley, R. Roaf, G. M. Robertshaw, Annie I. B. Ross, Mary C. Rowe, K. C. Royes, N. Sacks, A. R. Samuel, F. H. Scadding, C. G. Scorer, C. W. Seward, Constance M. B. Shaw, G. Shneerson, R. J. Simms, D. A. Slade, J. M. Small, A. W. Stewart, J. F. Stokes, H. Stoll, W. G. Sutcliffe, S. Tarlovskis, W. Taylor, I. E. J. Thomas, J. N. Thomas, L. C. Thomson, R. W. Thomson, G. G. Thyne, D. J. D. Torrens, R. L. Townsend, I. S. Varma, E. Vernon, F. H. Vollam, G. M. Ward, S. Ward, R. W. Watts, G. V. Webster, T. Weiner, R. A. White, E. H. L. Wigram, O. G. R. H. Williams, S. I. Williams, A. D. Willis, I. N. Winer, F. A. J. Woodland, E. Woolf, A. S. Woolstone, R. O. Yerbury.

The following diplomas were granted, jointly with the Royal College of Surgeons of England, to the following candidates:

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—H. Akhtar, S. Amarasinghe, R. H. Barrett, A. H. Booth, J. W. Bowden, J. C. Busby, K. L. Buxton, Dorothy G. Cowie, G. H. Fisk, A. B. Gilfoy, S. A. Hasib, A. D. Hodges, W. H. Jeffrey, A. Mizrahi, P. P. Murphy, V. T. Pasupati, M. G. Pearson, C. Ponnambalam, J. D. Prasad, J. T. Robinson, M. Roushdy, C. A. Rumball, A. G. Rutter, S. Shrikhande, L. M. de Silva, M. Singh, D. W. Soman, A. S. Syed, A. L. F. Thomson, G. I. Watson, J. G. Webb.

Diplomas in Child Health were granted, jointly with the Royal College of Surgeons of England, to the twenty successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England published in the *Journal* of April 17 (p. 840).

## ROYAL FACULTY OF PHYSICIANS AND SURGEONS

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on May 3, with the president, Professor Archibald Young, in the chair, the following were admitted Fellows of Faculty: Joseph Alexander Bell, M.B., Ch.B., Hatimbai Shaikh Abdulally Malik, M.B., B.S., George Broughton Smart, M.B., D.P.H.

## SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—A. A. Beazeley, N. Bickford, P. H. Denton, S. M. M. Niall, W. G. Tillmann.

MEDICINE.—P. H. Denton, G. Howell, L. W. La Chard, J. F. Mason, A. P. Motley, F. L. Skinner.

FORENSIC MEDICINE.—P. H. Denton, G. Howell, L. W. La Chard, J. F. Mason, A. P. Motley, F. L. Skinner.

MIDWIFERY.—D. R. Daniel, J. B. Good, J. F. Mason, F. D. Pitt Palmer.

The diploma of the Society has been granted to N. Bickford, P. H. Denton, L. W. La Chard, S. M. M. Niall, and F. L. Skinner.

## ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting of the College, held on May 4, with the President, Dr. W. T. Ritchie, in the chair, Dr. Douglas James Campbell (Grimsby) was introduced and took his seat as a Fellow of the College, and Dr. George Abeysingha Weera Wickramasuriya (Ceylon) was elected a Fellow of the College. The Freeland Barbour Fellowship was awarded to Mr. Walter Tebrich, B.Sc.

# The Services

## DIRECTOR OF MEDICAL SERVICES IN INDIA

The War Office announces that, with the approval of the Government of India, Major-General G. C. Tabuteau, D.S.O., late R.A.M.C., Deputy Director of Medical Services, Northern Command, York, has been selected to succeed Major-General E. A. Walker, C.B., I.M.S., as Director of Medical Services in India, as from August 10, when the latter vacates the appointment.

# Medical Notes in Parliament

The House of Lords on May 5 received the Livestock Industry Bill from the House of Commons and read it a first time. A first reading was also given to the South-East Essex Joint Hospital District Bill. On the same day further amendments were made in the Children and Young Persons (Scotland) Bill, and the Maternity Services (Scotland) Bill was read a third time. The latter, with the Special Areas Amendment Act, the Earsdon Joint Hospital District Act, and the South Nottinghamshire Joint Hospital District Act, received the Royal Assent on May 6.

The House of Commons is due to reassemble on May 24, and will that day discuss the Civil List. The text of the Finance Bill is expected to be issued about that date. There will be no change in the Cabinet during the recess.

On May 4 the Livestock Industry Bill and the Diseases of Fish Bill were each read a third time; the latter had also passed the House of Lords. The Widows', Orphans', and Old Age Contributory Pensions (Voluntary Contributors) Bill passed through the report stage in the House on May 6, and was read a third time.

Sir Francis Fremantle presided on May 5 at a meeting of the Conservative Health and Housing Committee, when Dr. C. F. McCleary spoke on the menace of depopulation in the British Empire. He showed that it had been established by Kuckynski's method of computation that if present conditions continued the death rate in the United Kingdom would exceed the birth rate within the next five years. The same danger existed in Australia and New Zealand. Dr. McCleary urged that the public should be warned on this subject before the economic and social consequences became serious.

### Factories Bill in Committee

Clause 77 (Power to suspend certain provisions of Part VI—employment of women and young persons—in emergency) was discussed when the Standing Committee of the House of Commons resumed consideration of the Factories Bill on May 4. The clause was approved with the additional provision, moved by Sir JOHN SIMON, to ensure that the exemption should not conflict with an international convention restricting the employment of women or young persons in factories. On Clause 78 (Exceptions as to male young persons employed in shifts) Sir JOHN SIMON said the subject-matter of the clause was difficult and was directed to industries which required to be carried on day and night. He had come to the conclusion that it would not be right to make any exceptions at all as regards young persons under 16, although the Committee might have to do it in the case of youths between 16 and 18. He would amend the clause so that it should apply to young persons who had attained the age of 16. He had also put down other amendments. Sir Ernest Graham-Little had proposed an amendment to ensure that where young persons were to be worked in shifts in exceptional circumstances or in late hours they should only so work when it was ascertained that they were physically fit for it; his proposal was that there should be a preliminary medical examination. Sir John Simon doubted whether it was good to put a young man who believed himself to be perfectly fit through that kind of trial beforehand. He would prefer to insert in the clause a provision similar to one in Clause 92 enacting that the young person who had attained the age of 16 and was working at night should not remain in that employment after the expiration of such period as might be prescribed unless he had been examined by the examining surgeon and certified to be fit for that employment. He would also add a provision by which there was to be a periodic examination: it was not enough to be sure that the youth was fit at the beginning only. Mr.

SHORT said that the amendments were an improvement and would tend to relieve the pressure of discussion.

Sir John Simon's amendment omitting young persons under 16 was agreed to, but one from Mr. Short, the effect of which would be to prohibit the employment of young persons on the shift system between 6 a.m. and 10 p.m. on Sundays, was negatived. Other amendments moved by Sir John Simon were accepted, including the following:

> "A young person who is taken into employment in accordance with the foregoing provisions of this section in any factory shall not continue to be so employed after the expiration of such period, not being less than seven days, as may be prescribed by the Secretary of State unless he has, in accordance with these regulations, been examined by the examining surgeon and certified by him to be fit for such employment, and the regulations shall provide for the re-examination of young persons so employed at intervals not exceeding six months."

### MEDICAL OPINION ON NIGHT WORK

On the motion that the clause stand part of the Bill, Mr. DENMAN said it was clear there was no chance of abolishing at this stage night work for young persons. Medical evidence to show that night work was injurious to young persons was lacking, but strain in early years injuriously affected them later on as adults. He had statements to that effect from a doctor at a London hospital who had experience of the night work referred to in this clause and from a factory inspector, who said that although no evidence could be brought of ill-health among young persons the result could be seen in adults. An authoritative statement in the *Lancet*, published after the second reading of the Bill, argued that it was biologically unsound to subject young persons between 16 and 18 to the strain of night work, and that there was less danger in allowing young girls to do it than in allowing youths of the same age to do it.

Sir ERNEST GRAHAM-LITTLE said he would re-enforce the protest against working young persons at night by figures from a book just published by Dr. Vernon, an experienced research worker, whose conclusions had been accepted by the whole medical profession. He showed an extraordinarily high mortality rate in the age group of males between 15 and 19. His unit in this age group was 40,000, and the fatal accidents constituted one-fifth of the deaths in that group. The departmental committee on the employment of young persons recently recommended a general prohibition of night employment for young persons for a period of eleven hours, including the hours of 10 p.m. to 6 a.m. Dr. Vernon said that on the whole accidents were more frequent during night work, and in the iron and steel industry fatalities were sometimes 50 per cent. higher.

The clause as amended was added to the Bill by 24 to 13.

Clause 79 (Exceptions as to simultaneous hours for meals and rest), and Clause 80 (Exceptions as to employment during intervals) were added to the Bill. Clause 81 (Exceptions as to use of rooms during intervals) was added to the Bill with an amendment. Clause 82 (Exceptions as to continuous employment of male young persons employed with men), Clause 83 (Exceptions as to male young persons employed on repairing work), and subsequent clauses to Clause 92 were added to the Bill.

### MEDICAL EXAMINATION TO DETERMINE FITNESS

On Clause 92 (Certificate of fitness for employment of young persons) Sir ERNEST GRAHAM-LITTLE had a series of amendments. He said all were attested by medical authorities. Sir JOHN SIMON said Sir Ernest would bring within the clause girls up to 18 and leave it as it was in the case of boys up to 16. The clause required that every young person entering a factory under the age of 16 should be examined by the examining surgeon, who would re-examine if there was any doubt as to fitness for employment. If the young person moved to another factory during the first two years there would be a further examination. Responsible medical authorities connected with the factory system advised him that these examinations were sufficient to secure that any young person under 16 who suffered from defects would be warned off that employment. There was to be a liaison between the examining surgeon and the school medical officer, and in doubtful cases the examining surgeon would be able to obtain information from the latter. His medical advisers were satisfied there would be considerable feeling among older juveniles if it was said that if they chose to come into factory life they would by law be put under compulsory medical examination at intervals. The healthy young men of 17 did not regard themselves as children, and the Committee would have to consider what was involved in legislating for female young persons if they had to be exposed to a compulsory examination by an examining surgeon. Sir ERNEST GRAHAM-LITTLE said the objections indicated by the Home Secretary had not arisen in factories, and there had been no difficulty between the whole-time medical officers of large firms and the general practitioners in charge of factory workers outside. On the contrary the work had been harmonious. Remarkable improvement had resulted in the health of the workers from periodical and close examination by a full-time medical officer. He withdrew his amendment and the clause was added to the Bill.

When the Committee resumed on May 5 the clauses dealing with ships, docks, works of building, and engineering construction were added to the Bill. Mr. GIBBINS withdrew an amendment applying Clause 99 (Ships) to men engaged in disinfestation of a ship. Mr. GEOFFREY LLOYD said the point was better covered by the Bill then before the House of Lords which dealt with hydrogen cyanide fumigation. Mr. GIBBINS said that men searching ships for rats which were the causes of plague should be included. Clause 102 (Employment of women and young persons in places other than factories in processes connected with lead manufacture or involving the use of lead compounds) was added to the Bill without debate.

### FACTORY INSPECTORS

After discussion of administrative matters on subsequent clauses the Committee considered Clause 115 (Appointment and duties of inspectors and clerks and servants). Mr. ALFRED SHORT said the Committee would like to know the number of factory inspectors at the moment and the number of new factory inspectors who might be appointed in the future. The Memorandum issued with the Bill estimated that the increased cost would be in the neighbourhood of £25,000 to £30,000. He would also like to know the qualifications of inspectors and whether competent and practical men and women would be appointed as distinct from merely university trained people. These inspectors should be relieved from a mass of clerical work. They ought not to be employed in tabulating masses of figures and statistics when their job should be outside, in and around the factories, examining the conditions, seeing for themselves that the provisions of the Act were properly and efficiently carried out, and looking after the welfare of the people concerned. He would like to know the position of female inspectors and what was to be their number.

Mr. GEOFFREY LLOYD said the question of pay and other questions which had been raised were settled by the Treasury and the conditions laid down by the Civil Service Commissioners on general principles applicable to the whole of the Civil Service. Women factory inspectors were about 30 per cent. of the inspectorate, which corresponded roughly to the proportion of women in industry. They were treated from the point of view of seniority in the same way as men, and in the Home Office there was a common seniority list. There was nothing technically to bar a woman becoming Chief Inspector of Factories. There were also two women superintending inspectors of factories. The financial resolution attached to the Bill would provide for thirty to forty more inspectors, but the amendments made in Committee might affect that number. The clause and the subsequent clauses dealing with the powers and certificates of inspectors were approved.

### DUTIES OF EXAMINING SURGEONS

On Clause 119 (Appointment and duties of examining surgeons) Major NEVEN-SPENCE moved to leave out a proviso the effect of which, he said, was to allow the Secretary of State to authorize a medical practitioner employed by the occupier of a factory in connexion with medical supervision to

act as an examining surgeon. Factory examining surgeons were specialists in regard to knowledge, experience, and qualifications, and ought to be whole-time men at the job. A medical practitioner in charge of welfare work in a factory had not necessarily any of the qualifications which he should have as an examining surgeon. If, under Clause 67, the Home Secretary required an investigation and report in the case of death or injury due to exposure to fumes or in the case of any disease, that should not be carried out by a paid employee of the occupier of the factory.

Mr. GRAHAM WHITE and Mr. RHYS DAVIES supported the amendment, but Sir JOHN HASLAM said the factory inspector became a specialist in his own business in knowing the law and understanding adolescence. It was a wise move indeed for those progressive firms who had set an example to the whole of the country in looking after the health and welfare of their workers, to call in the factory surgeon as their medical adviser, not only in regard to certifying, but in every other aspect of their line. It was a slur on these medical men that they should be excluded by statute from occupying this position, and the Home Office would be ill advised to exclude them from carrying on welfare work in the factories in addition to their ordinary certifying business.

Mr. LLOYD said that when he first saw this provision he inclined to take the view that it was not right to put any man in a position in which there might be a conflict of duties or interests. Since then he had heard the other side of the question and it impressed him. This was only an authorization to enable the Home Secretary to allow this procedure in certain cases and for certain purposes, and therefore it could be closely controlled by the Home Office. Most of these works doctors were keen on their job. In relatively progressive industries the employers had been sufficiently public-spirited to go to the trouble and expense of having a special doctor for this purpose. That was a development that the Home Office would like to encourage. It did seem that it was not necessarily right always to forbid a works doctor, who knew so much about the conditions in the factory, from performing some work under the Bill, such as, for instance, the certification of the fitness of young persons. People might take a different view, but under the safeguards provided in the Bill the Home Secretary might authorize this. If it were authorized improperly it might be liable to abuse, but on balance it was wise to keep it in.

Mr. SHORT suggested that the Home Secretary should insert words by which, while it would be possible for a paid medical officer of a particular factory to be an examining surgeon, he would not be permitted to investigate the cause of death or of some disease reported by the inspector which occurred in his own factory, but some other examining surgeon would be called in to do that class of work. Sir JOHN SIMON said he liked the suggestion. He would be prepared to see the proviso run something after this fashion:

"Provided the Secretary of State may authorize a medical practitioner . . . to act as examining surgeon for that factory."

and instead of saying "for such purposes as the Secretary of State may direct," it might be sufficient to say: "for the purpose of examining and certifying the fitness of young persons."

Major NEVEN-SPENCE withdrew his amendment and that proposed by Sir John Simon was made.

On receiving from Mr. Lloyd a promise that the subject would be considered at a later stage Mr. RHYS DAVIES withdrew an amendment proposing that "subject to the consent of the employed person concerned the examining surgeon shall have the right to inspect the medical records of the medical practitioner employed by the occupier of the factory."

### SCHOOL MEDICAL HISTORIES

On the motion that Clause 119 stand part of the Bill, Mr. ELLIS SMITH said progressive education authorities were of opinion that the medical officers who administered the Education Acts ought to have jurisdiction also over the children until they reached the age of 18. These medical officers were already responsible for children up to the age of 16 in the elementary schools, and in the case of the secondary schools responsible for them until the age of 18. He asked the Home Secretary, before the report stage, to reconsider the whole of this clause, in order that this developing scientific method of handling children up to the age of 16 might be continued until 18 years of age. Factory inspectors were fully occupied with their duties arising out of the Factory Acts, without having to concern themselves with children up to the age of 18. This specialized subject ought to be handled by specialists, and there was growing up in the schools a specialized method of dealing with it. Under the Education Act, 1936, it would be the duty of education authorities to give beneficial employment certificates, and in giving those certificates the education authorities would have regard to the health and physique of the children. These records having been obtained, they should be used for the benefit of the nation and of the children themselves, and progressive education authorities should have the right to look after the children until they reached the age of 18.

Mr. LLOYD said if it was necessary to change the provisions of the Bill to make sure these medical histories would be available, and if they could not be made available in any other way the case would be strong, but even then there would be objections. A large number of school children—he had heard it estimated at 50 per cent.—went to work in areas different from those in which they had grown up as school children. That would make the working out of this scheme, if based on the educational medical system, difficult. In any case these medical histories could be made available. There were elaborate provisions in Subsection (9) of Clause 92 for this. These provisions brought in the Education Act, and also rules that might be made by the Ministry of Health for securing the observance of the provisions.

The clause as amended was approved.

On Clause 120 (Fees of examining surgeons) Mr. VIANT moved an amendment which would have the effect of charging the Home Office with the expenditure in connexion with the administration of this part of the Act. Mr. LLOYD replied that these medical examinations were on a similar basis to other precautionary measures which occupiers were required to take, and of which they had to bear the expense. He did not see any reason why they should be relieved of this particular expense. The Government did not wish to add to the burdens of the State in this matter, and there had been no general body of representations in favour of this change, which would seem to be unnecessary.

The amendment was withdrawn and the clause ordered to stand part of the Bill. Clauses dealing with offences and fines were also approved, and the Committee adjourned till May 25. It is hoped that a further two sittings may complete the committee stage.

## World Opium Convention

On May 3 Mr. A. HENDERSON asked the Secretary of State for Foreign Affairs whether any action had been taken at Geneva to set up a preparatory commission in anticipation of the World Opium Conference, to be held in 1940. Mr. EDEN said that preparatory work for the Conference for Limiting the Production of the Opium Poppy and of Raw Opium was among the items on the agenda of the next session of the Opium Advisory Committee, which would open at Geneva on May 24. The Committee would consider the appointment of a preparatory committee to draw up a preliminary draft convention. Mr. HENDERSON asked the Foreign Secretary whether, in view of the need for drastic and effective action against the opium evil, the Government would instruct its delegates to work in co-operation with the delegates of the United States of America to ensure that this Conference should be a success.

Mr. EDEN: Yes, I can give an assurance. Our delegates will do everything in their power to co-operate with those of the United States.

## Malnutrition Discussed in the House of Lords

Viscount ASTOR, in the House of Lords on May 5, drew attention to the report of the Advisory Committee on Nutrition to the Ministry of Health. He asked whether the Ministry of

Labour inquiry for the purpose of the cost-of-living index would include an inquiry into dietary surveys, and, if so, how many families would be concerned and what steps were being taken to ascertain the family incomes so as to correlate this inquiry with that proposed to be undertaken by the Registrar-General and an independent statistician. He also asked for details of this inquiry by the Registrar-General and of any dietary surveys conducted by local authorities in urban and rural areas of England and Wales and in Scotland. Lord Astor said that the main cause of malnutrition was poverty. By malnutrition he meant a degree of ill-health or of subnormality due to malnourishment, and in other cases bad physical development due to malnutrition in early youth. The problem was one of purchasing power, and the report of the Advisory Committee on Nutrition substantiated this contention.

The problem arose largely because of malnourishment in youth. A number of cases of maternal mortality were due to malformed pelvis from malnutrition of the woman when she was a child. They had to get into their minds an entirely new standard. At the beginning of last century medical officers in the large industrial cities were satisfied with the housing conditions; to-day medical officers walking down the same streets unanimously agreed that those houses must be pulled down as slums. The House must bear that in mind when they saw quoted reports from medical officers of health to the effect that there was no problem of malnutrition. Those who made such reports were out of date and not acquainted with the new findings of science. Making all allowances for over-statements, one could say that a real problem of malnutrition affected millions of people in this country. The questions he had asked the Government were based on recommendations of the Advisory Committee, and in particular he wished to refer to page 26 of the report, where reference was made to methods of clinical assessment. Did the Minister contemplate an investigation of the clinical aspects in direct correlation with the dietary surveys which he proposed to make? Other countries—Scandinavia and the United States of America—made surveys on a large scale. In America they made 300,000 family budget inquiries. A great opportunity would be missed if the Government did not insist that these surveys were adequate.

### GOVERNMENT'S MILK POLICY CRITICIZED

The Advisory Committee's report indicated the importance of milk as an article of consumption in diet. Yet after four years of the Milk Marketing Scheme there was a low consumption of milk, and retail prices were the second highest in the world. Dairy farmers were all discontented. There must be something fundamentally wrong with a scheme that had such results. The Milk Board had built up new industries of butter-making, cheese-making, and processed milk by imposing a tax of roughly 3d. a gallon on this account. The Minister of Health, as soon as the report of the Advisory Committee was published, had circularized all local authorities drawing their attention to the recommendations of the committee, and urging them to make more provision for supplying milk to mothers and children. Why should the Minister of Health ask ratepayers to spend money on buying milk which had been artificially put up in price?

The Minister of Health recently mentioned the provision made for giving the unemployed in a certain area milk at 2d. a pint. Everybody ought to be able to get milk at 2d. a pint without subsidy, instead of 3d., which was the present cost. It was quite possible to do this. He would not say that an immediate drop of a penny in the price of milk was followed by an immediate rise in consumption, but a considerable increase would follow over a long period. One of the difficulties was that many children got a taste for tea before they went to school, and did not avail themselves of the cheap milk provided because their palates had become vitiated. Much could be done in persuading parents not to cultivate tea-drinking among very young children. The cost of milk affected not merely the lowest wage-earners, but the "black-coated" section of the community and the hospitals. There was no reason why the nation should not control the wholesale distribution of milk. Last winter, when there was a shortage of milk for liquid consumption, it was going under contract to factories. There must be something wrong there. Even after the cost of milk had been reduced the Government would still have to subsidize milk for certain of the poorer sections of the community.

If details of income and standards of living of workers given in a book just published by Mr. Seebohm Rowntree were accurate, as he had every reason to believe they were, tens of thousands of children of to-day were being malnourished. Mr. Rowntree suggested some system of family allowances to ensure that where the number of children exceeded three a sum of 5s. per child should be given, but Lord Astor thought it would be better to help in kind. He did not advocate free meals for all children, but thought Parliament must contemplate subsidizing food, and should not limit this to children of school age. If they were to spend five million pounds in subsidizing food supplies at maternity centres, nursery schools, and elementary schools, they would at no distant date have a strong and happy race and a far more prosperous agriculture. The health foods were the perishable vegetables, fruits, and milk, and they should subsidize the consumption of these.

Lord SNELL supported Lord Astor, and said that when he spoke of malnutrition he did not suggest acute starvation, but a deficiency in kind and in the quality of food that was necessary to give a balanced diet and vigorous health. Lord ELTISLEY defended the Milk Marketing Board, and said it had saved 135,000 milk producers in the country from disaster. Lord NOEL-BUXTON stated that adequate nutrition could sometimes cure a severe case of impaired physique even when hospital treatment had failed. The BISHOP OF NORWICH said he was not sure that certain restrictions put upon the quality of milk were as necessary as the doctors said. He had never seen anything convincing on the relative value of plain milk, pasteurized milk, and boiled milk. Lord DENMAN said milk in this country cost twice what it cost in Belgium and Holland, nearly twice as much as it did in France, and was much higher in price here than it was in Germany. Milk was sent to London and the other great cities, and the agricultural worker was unable to pay the high price for his family. He hoped the Government would not give way to the pressure brought to bear upon it to make it impose tariffs on butter, cheese, and other milk products.

### GOVERNMENT'S REPLY: INVESTIGATIONS IN PROGRESS

Viscount GAGE, replying for the Government, said the average consumption per head of most foodstuffs had increased since before the war, and with one exception there had been a general improvement in the quality of the national diet. The supply of energy-giving foods available for the nation was more than the League of Nations considered adequate. Private investigators had attempted to show how the food was distributed according to various occupations, wages, and incomes. The report of Sir John Orr was a document of considerable value, and other reports were also available, but the Government accepted the recommendation of the Advisory Committe on Nutrition that more information was desirable, and was prepared to collect it.

People were willing to explain their outgoings and their budget, but were very unwilling accurately to disclose their incomes. Incomes, therefore, had to be estimated and related to the budget in a roundabout way. For the Ministry of Labour inquiry in connexion with the cost-of-living index figure it was hoped to procure weekly budgets of 10,000 families taken over four separate weeks in various parts of England, Wales, and Scotland. To find the number of calories, vitamins, carbohydrates, and so forth that were consumed they proposed a "quantitative dietary survey" of a much more detailed character. This was already in progress, and would eventually embrace 500 families, of which 200 would come from Scotland. A qualified investigator had to spend much time in the homes of these families weighing up all the food which came into the house and what was left over, and estimating its composition down to the constituents of the puddings, and noting any wastage. He referred Lord Astor to the survey at Newcastle-on-Tyne affecting sixty-nine

families, the results of which had been published. The results of another inquiry affecting 205 families in the West Riding would probably be published by the end of this year. Inquiry had begun in the Isle of Ely, Surrey, Glossop, Aberdeen, and certain industrial towns near Glasgow. It would be extended to Somerset, Glamorgan, Carmarthen, Cardigan, Aberdeen County, Banff, Kincardine, Dumfries, and the Border Counties. Statistics would be compared with information in the possession of the Ministry of Labour on wages rates current in the occupations concerned.

Turning to the controversial question of how nutrition could be improved, Viscount Gage admitted that three-quarters of the problem turned on the capacity of people to buy the right food, and therefore food must be cheap. During the Government's period in office the number of persons in employment had increased by about two millions, whereas the price of essential foodstuffs had remained fairly steady during the last five years. The price of milk had not varied much since 1931. In 1931 the price per quart was 6d., and in 1937 it was 6½d. In what had been called the health foods prices had been fairly steady. The Government had been active in ensuring a supply of milk on special terms to special classes of the community, principally school children, expectant mothers, infants, and unemployed in the distressed areas. The scheme for cheap milk was now helping 2,500,000 school children. Over 400,000 children received free milk last year, and 143,000 children received free meals. Last year about 7,000,000 gallons of milk were distributed free or at less than cost price, according to the means of the applicant. The Government would press forward all these schemes to the best of its ability. There might be an improvement in the number of mothers attending ante-natal clinics, although about 50 per cent. of them attended now. Before the publication of the Government's conclusions on the Milk Reorganization Report, upon which much depended, he could not announce any new and remarkable extension of Government policy.

## The Capitation Fee: Court of Inquiry

In an answer on May 6 to Mr. Rhys Davies, Sir KINGSLEY WOOD said that, put briefly, the object of the tribunal to inquire into the fees paid to panel doctors under the national health insurance scheme was to investigate whether any, and if so what, alteration ought to be made in the amount of the doctors' capitation fee, having regard to any changes since 1924 in the cost of living, the working expenses of practice, the number and nature of services rendered to insured patients, and other relevant factors. This Court of Inquiry had been appointed by Dr. Elliot and himself. The services of the following as members of the Court had been secured: Lord Amulree (chairman), Mr. Thomas Howorth, and Mr. D. H. Robertson. The terms of reference were set out in last week's *Supplement* (p. 272).

Answering Mr. Will Thorne, Sir KINGSLEY WOOD said this appointment of a court was to be regarded as a friendly arrangement, to have this matter dealt with by independent people. There were discussions upon it between the British Medical Association and himself, and it was considered that this would be the best means of dealing with the matter.

Mr. THORNE: Are we to take it for granted that if the committee puts up a recommendation similar to the Government's offer to the doctors, that recommendation will be put into operation?

## Committee on Corporal Punishment

Sir JOHN SIMON announced on May 6 that he had secured the services of the Hon. Edward Cadogan as chairman of the committee to examine the various provisions of the law authorizing corporal punishment for both adult and juvenile offenders. The committee would take account of the different considerations affecting different aspects of the problem. He hoped shortly to announce the names of the remaining members of the committee.

*Cleanliness of Public Telephones.*—Answering, on April 28, questions by Colonel GOODMAN about the cleansing of mouthpieces in public telephone boxes, Sir WALTER WOMERSLEY said the mouthpieces and earpieces of telephones in call offices provided with an attendant were wiped with a clean cloth moistened with suitable disinfectant every morning. At other call offices the frequency depended on the location of the kiosk and the extent to which it was used. A full investigation had been made into this question by a committee on which medical men sat, and their decision was that the "infection" was more psychological than actual.

*Post-mortem Examinations for Inquests.*—Replying, on April 29, to Mr. Cecil Wilson, Sir JOHN SIMON said that by Section 24 of the Coroners (Amendment) Act, 1926, a coroner might, for the purpose of a post-mortem examination, order that the body be removed to any place which may be provided for the purpose, either within his jurisdiction or within an adjoining coroner's jurisdiction; but he might not under that section order the removal to any place other than a place within his jurisdiction provided by a sanitary authority or nuisance authority except with the consent of the person or authority by whom the place was provided. Sir John promised to make any investigation which he could of cases in which Mr. Wilson thought that the circumstances of examinations should be brought to his notice.

*Cost of Health Services for Children.*—Sir KINGSLEY WOOD stated on April 29 that in the financial year 1935–6, the latest for which figures were available, grants paid by the Board of Education to local education authorities and voluntary institutions in respect of health services for school children amounted to £2,706,342. In addition, the Exchequer grant towards the cost of the scheme for supplying milk at half-price to school children amounted to £397,184 for the year ended September 30th, 1936. Corresponding figures were not available in respect of health services for young children not yet in attendance at school.

*Vaccination and Small-pox Statistics.*—On April 29 Sir KINGSLEY WOOD furnished the following statistics:

*England and Wales*

| | Number of Vaccinations expressed as a percentage of total births | Small-pox cases notified | Small-pox deaths registered |
|---|---|---|---|
| 1926 | 44.8 | 10,146 | 18 |
| 1927 | 44.9 | 14,767 | 47 |
| 1928 | 42.6 | 12,420 | 53 |
| 1929 | 39.9 | 10,968 | 39 |
| 1930 | 40.1 | 11,839 | 28 |
| 1931 | 39.0 | 5,664 | 9 |
| 1932 | 38.2 | 2,039 | 3 |
| 1933 | 37.0 | 631 | 2 |
| 1934 | 36.1 | 179 | 6 |
| 1935 | * | 1 | 0 |

* Figures not yet available.

*Approved Societies: Transfer of Members.*—On May 3 Mr. RHYS DAVIES asked the Minister of Health whether, in view of the statutory title of members of approved societies to freedom of choice of society and right to transfer, he would cause inquiry to be made whether there was in existence any written or implied agreements between large approved societies or groups of such societies where such statutory freedom was restricted. Sir KINGSLEY WOOD said that few societies had agreed not to accept applications for transfer from members of certain other societies, but since under the National Health Insurance Act an approved society was free to reject an application for membership on any ground other than age, such an agreement did not contravene any provision of the Act.

*Local Government Superannuation.*—In the House of Commons, on May 4, Sir KINGSLEY WOOD introduced the Local Government Superannuation Bill. The measure makes further and better provision with respect to the payment of superannuation allowances and gratuities by local authorities and certain statutory undertakers, and with respect to the persons entitled to participate in the benefits of a local authority's superannuation fund or scheme.

*Experiments on Animals.*—On May 4 Mr. LEACH asked the Home Secretary how many inoculations had been performed in contravention of the Cruelty to Animals Act, 1876, by the experimenter referred to in the Home Office Return of Experiments on Living Animals for 1935; and what period of time had been covered by the illegal inoculations. Mr. LLOYD replied: Fourteen, and all were given on the same day.

*Typhoid Fever in Liverpool.*—On May 4 Sir KINGSLEY WOOD told Mr. Groves that 123 cases of typhoid fever (including paratyphoid) had been notified in Liverpool during the present year up to April 24, the majority of which occurred in an outbreak of paratyphoid fever in January. That outbreak was regarded by the local authority as now at an end.

*Voluntary Hospital Finance.*—Mr. SORENSON, on May 6, asked the Minister of Health whether, in view of the report of the Voluntary Hospitals Commission and of the increasing contributions by public authorities to voluntary hospitals, he would require that the finances of voluntary hospitals should be pooled, and that greater co-ordination should be effected between voluntary and public hospitals. Sir KINGSLEY WOOD answered that he had noted with interest that the Voluntary Hospitals Commission, while not recommending the immediate pooling of hospital finances, suggested the creation of regional funds. He had no powers in this matter, which was one for consideration by the governing bodies of the hospitals. He would continue to encourage co-operation between voluntary and public hospitals, which was already increasing steadily.

Sir Kingsley Wood further said it would not be a fair assumption to say the time had come when State aid should be given to all hospitals.

*Bomb-proof Shelters.*—Replying on May 6 to Lord Castlereagh, Mr. GEOFFREY LLOYD said it would not be practicable on grounds of cost to construct on any appreciable scale shelters proof against a direct hit by a large high-explosive bomb. Arrangements were being made with the help of local authorities for suitable places to be marked as refuges for those who might be caught in the street, and for such places to be given as good protection against blast and splinters and gas as possible. A handbook for householders on air raid precautions was in an advanced state of preparation.

*Water Supply Investigation in Scotland.*—Answering Sir Archibald Sinclair on May 6, Mr. ELLIOT said an investigation into domestic water supplies in Scotland was now being undertaken by the Department of Health for Scotland. Information provided by local authorities was now being considered with a view to securing as complete a survey as possible of actual and potential sources of supply, and estimating the present and future requirements of the various localities. The investigation would show how the sources of supply could be used so as to secure a satisfactory system of distribution. The Department's engineers were also engaged on estimates of probable costs of water and drainage schemes for "landward" areas. The special problem of the sparsely populated areas in the Highlands and Islands was under consideration in the light of the report of the Committee on Scottish Health Services.

### *Notes in Brief*

In 1934 there were two cases of corporal punishment for prison offences, none in 1935, and six in 1936.

The number of deaths of infants under 1 year classified to vaccinia or other sequelae of vaccination which were recorded by the Registrar-General during the ten years 1926 to 1935 was forty-two.

A Departmental Committee has been set up in Tanganyika as in many other parts of the Colonial Empire to study questions relating to human nutrition. The desirability of combining medical and anthropological inquiry will be given full weight by the committee.

Sir John Simon has consulted the Lord Chancellor on the question of amending the Infanticide Act of 1922 to define the expression "newly born." Examination of the problem showed a number of difficulties in amending the existing Act, and Sir John told the House of Commons on April 15 that he could not promise any legislation on this subject.

# Medical News

The seventh John Mallet Purser Lecture will be delivered by Professor E. D. Adrian, M.D., F.R.S., at Trinity College, Dublin, on Wednesday next, May 19, at 5 p.m., in the Department of Physiology (Medical School). His subject is "The Physiology of Sleep."

At a meeting of the Court on April 13 the Governors of Guy's Hospital decided, on the recommendation of the Medical Committee, that the ward previously called "Lazarus" should now be named "Keats Ward," to commemorate the association of John Keats with the hospital.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, May 27, at 8.30 p.m., when a paper will be read by Dr. Alexander Baldie on "The Prevention and Treatment of Delinquency."

The next quarterly meeting of the Royal Medico-Psychological Association will be held at the Leicestershire and Rutland Mental Hospital, Narborough, near Leicester, on Friday, May 21, at 2.30 p.m., under the presidency of Dr. M. Abdy Collins.

A meeting of the Society of Radiotherapists will be held at 11, Chandos Street, W., on Friday, May 21, at 5 p.m., when there will be a discussion on "Malignant Tumours of the Testis," to be opened by Drs. Gordon Taylor, J. H. D. Webster, Burrows, Payne, and Phillips.

The second congress for allergic diseases will be held at Düsseldorf on May 22 and 23, with Professor Otto of Frankfort as president of honour and Professor Haag of Düsseldorf as president. The secretary is Dr. Karrenberg, Fischenstrasse 45, Düsseldorf.

The second congress of the International Society of Gastro-enterology will take place in Paris from September 13 to 15 inclusive, during the Universal Exhibition, and will be followed by the International Congress on Liver Insufficiency at Vichy from September 16 to 18. At the earlier of these the two subjects for discussion are the early diagnosis of cancer of the stomach and intestinal obstruction. The first will include clinical and serological diagnosis, gastroscopy, chemical tests, pathological anatomy and histology, and operative diagnosis. The second will be considered from the medical, surgical, pathological, and radiological aspects, and Sir David Wilkie is one of the openers. At Vichy the discussions will be medical and therapeutic, and deal with such topics as hepatic oedema, the malarial liver, hepatic enlargement in childhood, sulphur metabolism, surgical intervention, and specific medication. Dr. A. F. Hurst is president of the British committee and Sir Walter Langdon-Brown is a president of the congress on hepatic insufficiency. Special travel and accommodation facilities are available for British visitors, and full details of these and the programmes may be obtained from Dr. T. C. Hunt, 49, Wimpole Street, W.1.

The second All-Indian Congress on Gynaecology and Obstetrics will be held at Bombay about Christmas time, when the chief topics for discussion will be the toxaemias of pregnancy and cancer of the cervix.

King Edward's Hospital Fund for London on May 7 received a special Coronation gift of £1,000 from an anonymous donor. No special appeal is being made on this occasion, but it is interesting to recall that when King Edward VII was crowned in 1902 over £100,000 was received by the King's Fund in Coronation gifts.

The April issue of the *Bulletin of Hygiene* contains a comprehensive review of recent work on drug addiction, by Dr. E. W. Adams of the Ministry of Health.

The Lord President of the Council has appointed Professor W. L. Bragg, F.R.S., who now holds the Langworthy Chair of Physics in the University of Manchester, to be Director of the National Physical Laboratory.

# Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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## QUERIES AND ANSWERS

### Iodine in Pulmonary Tuberculosis

Dr. JAMES PIRIE (Ashton House, Harbury, Leamington Spa) writes: Some years ago, in Germany, I was shown a method of treating tuberculosis by intensive nascent iodine, sometimes used alone, at other times in conjunction with tuberculin, and "contratoxin serum No. 4." I have employed this method ever since, generally with very good, and in some instances brilliant, results. In order to check the progress made a count was taken of the polymorphoneutrophil nuclei. I shall be pleased to send any doctor details of how the treatment can be carried out.

### Income Tax

*Ground Rent and Property Tax. Depreciation*

"S. L." is allowed to deduct one-third of the rental value, rates, etc., of his house—Can he also deduct one-third of the ground rent and property tax? He is allowed wear and tear only in respect of his car—Is that correct?

*** The rental value deduction is in substitution for the "rent" deduction where rent is in fact paid. Ground rent and property tax would be included in the actual rent, and no additional deduction can be allowed for those payments. Wear and tear is allowable only in respect of plant and machinery. Such minor necessities as surgical instruments are dealt with by the allowance of the cost of replacement as and when incurred, but "wear and tear" is sometimes allowed in respect of major items of professional equipment, such as *x*-ray apparatus or other electrical appliances.

*Liability for Temporary Residence*

"SOJOURN" arrived in this country for a temporary purpose in August, 1935, but owing to a change of plans has become a resident here.

*** He is liable to assessment as for the financial year ending April 5, 1936, *et sequitur* as a British resident. (This would have been the case as regards income arising in or remitted to this country even if he had not changed his mind, seeing that he spent six months of that year in the United Kingdom.) He is therefore liable (*a*) in respect of any earnings here and (*b*) in respect of income arising abroad as from the date of coming to this country. He is entitled to the usual married man's allowance (£180), the children's allowance (£60 × 3 = £180) for 1936-7—the amounts for 1935-6 are slightly larger—and to "relief in respect of Dominion income tax." In all the circumstances "Sojourn" would probably be well advised to call at the office of the inspector of taxes, explaining his circumstances, and complete the necessary forms of declaration.

## LETTERS, NOTES, ETC.

### Rheumatism and Tuberculosis in General Practice

Dr. G. L. BUNTING (Crowborough) writes: In spite of the comprehensive surveys which from time to time appear in the medical journals on the subject of chronic diseases the general practitioner is still faced with the problem of treating these conditions in his practice. I have in mind two widespread diseases—rheumatism and tuberculosis—and with some trepidation venture to make the following suggestions. The special treatments, such as baths, light, heat, and electrical therapy for rheumatism, with pneumothorax and sanatorium treatment for tuberculosis are, of course, the province of the large institutions. The bulk of cases cannot be treated in this way, and therefore remain under the care of their own doctors. Vaccine and tuberculin treatments have been tried with disappointing results. Judging from the results obtained at the Charterhouse Rheumatism Clinic in the borough in recent years the reasons for previous failure seem obvious. The new and somewhat revolutionary system of dosage as taught by Warren Crowe points clearly to a sensitivity to much smaller doses than those formerly employed. The relief of pain and benefit to health which follow the employment of the new technique have to be seen to be believed. I was able to use it extensively in my last years of general practice with most gratifying results. Impatience and a refusal to discard all previous ideas of dosage are often to blame for apparent failures. The only sane way to test this is to visit the clinic with an open mind and be convinced or remain sceptical. During many years of practice I have never lost my faith in tuberculin, and, though reluctant to admit it, there is, I fancy, an increasing number of sanatorium experts who make use of it. If confidence is established by success in the rheumatic field I venture to prophesy that the day is coming when tuberculin will also come into its own.

### Sweet Chestnuts in Epidemic Jaundice

Dr. E. A. ADDISON (Ipswich) writes: I practise in an agricultural district, and I was for some years puzzled as to the cause of an epidemic jaundice occurring every autumn among the children attending the village school until I definitely traced the cause to eating chestnuts. I refer to the small, sweet, English chestnut, of which there is an abundance in a neighbouring park. The children are fond of them, and usually eat them uncooked and freshly gathered. I have also known the parents to suffer from jaundice after eating the chestnuts brought home by their children. I have never read that chestnuts were a cause of jaundice; presumably this sort of chestnut differs from imported chestnuts, which have been some time in transit.

### The Old English Inn

Miss M. L. SPACKMAN (Clitheroe) writes with reference to Dr. A. A. Warden's letter in the *Journal* of April 3 (p. 732): According to De Quincey, inns towards the end of the eighteenth century were extremely dirty, and both he and Charles Moritz, a German pastor who visited this country in 1782, found that pedestrians were greeted with scowls, but Moritz discovered that some innkeepers could be conciliated by drinking with them. People who travelled in post-chaises were well received. De Quincey said that in the early nineteenth century matters had improved; but we may be sure if the modern tourist could go back in time and visit them he would miss "safe" drinking water, the works of the plumber, and the present-day standard of cleanliness.

### A Warning

Dr. A. SCOTT (Pattingham, near Wolverhampton) informs us that on May 4 he encountered and was responsible for having removed from his district a man who has been imposing on the medical and dental professions in the Midlands for some months past, and may now transfer his activities to some other area. He purports to be either a dental surgeon or an old medical student who failed in his finals many years ago and has since acted as dispenser. He usually gives his university as Edinburgh, and tells a typical hard-luck story in the hope of eliciting alms. His description is: age, about 60; height, about 5 ft. 6 in.; hair, partially bald, sandy, turning grey; eyes blue, arcus senilis present; features large, rubicund nose; luxuriant sandy moustache, turning grey; respectably dressed, talks quietly with a slight (real or assumed) Scottish accent.